B-READY

IEE Requirements Specification Document

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Course Specialisation: Business Analysis

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Declaration Cover Sheet for Project Submission

SECTION 1 *Student to complete*

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SECTION 2 Confirmation of Authorship

The acceptance of your work is subject to your signature on the following declaration:

I confirm that I have read the College statement on plagiarism (summarised overleaf and printed in full in the Student Handbook) and that the work I have submitted for assessment is entirely my own work.

Signature:_____Quam Jimoh_____
Date:_____11/05/2018_____

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Paraphrasing refers to taking the ideas, words or work of another, putting it into your own words and crediting the source. This is acceptable academic practice provided you ensure that credit is given to the author. Plagiarism refers to copying the ideas and work of another and misrepresenting it as your own. This is completely unacceptable and is prohibited in all academic institutions. It is a serious offence and may result in a fail grade and/or disciplinary action. All sources that you use in your writing must be acknowledged and included in the reference or bibliography section. If a particular piece of writing proves difficult to paraphrase, or you want to include it in its original form, it must be enclosed in quotation marks

and credit given to the author.

When referring to the work of another author within the text of your project you must give the author's surname and the date the work was published. Full details for each source must then be given in the bibliography at the end of the project

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- suspending a student college for a specified time,
- expelling a student from college,
- prohibiting a student from sitting any examination or assessment.,
- the imposition of a fine and
- the requirement that a student to attend additional or other lectures or courses or undertake additional academic work.

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1. Requirements Elicitation Analysis and Planning

1.1 Introduction

Before the conduction of my Requirements elicitation for my final project, I first set out a plan on how will conduct the techniques I set out to do. The advantage of having a plan give me a clear indication and understanding of the activities of the elicitation techniques in relation to my final year project. This also assisted me with the selecting the correct elicitation techniques to use and helped identify other available resources that may be needed during the conduction of the requirements elicitation. The gathered requirements will be first prioritized and then implemented into developed application. The requirements will be based around an application that will provide delivery drivers an optimal route while picking up or delivering a parcel or service. The gathered requirements will be the desired features that will be on the application.

1.2 Business Need

As the business analyst of this project, I will need to examine each issue in detail to ensure I am addressing the problems to the development of my application. One of needs that is has a lot of importance in relation to my project is my stakeholders input and contribution to my project. I believe in order to serve their needs effectively I plan to articulate the what results or outcomes are desired by my stakeholders, what solutions are being suggested or considered for implementation or adoption in order for my business needs to be met. This will be mainly done from the outcome of my survey and interviews. I will also need to identify in depth issues or problems that are getting in the way to deliver a strategic or tactical approach for a desired outcome. This is a critical activity for the development of application as it must be performed to meet my objectives while remaining solution independent.

Delivery drivers generally face many issues from my research for this proposed application but the most frequent issue resolves them getting to their destination in sufficient and efficient time. I believe my application will provide a solution to this issue and give delivery drivers much more

insight and convince on how they can go about their journey by my application providing a optimal route. This will also allow them getting to multiple destinations in efficient time. I think this is a major need for delivery drivers because they have a total control of their time over delivering to multiple destinations and my solution covers an area of saving time. Another important business need will involve knowing my competitors both direct and indirect. I will need to know what they are doing, how they market. One of main competitors is GetSwift. I will need to know how to position myself against my indirect and direct competitors. I will need to develop a database culture to track data and use this data to make business decisions, the better your decisions will be. This will be may use to track key performances of delivery drivers (KPI) for the business

My application will have some basic requirements but most of my requirements will be gathered from the main Domain SME through conducting my elicitation technique requirements. To get a full understanding of my business need, I plan to conduct a requirements elicitation to gather and determine what requirements my stakeholders would want for my application. After the conduction of my requirements elicitation, I hope it will add a belief to the need for successful app.

1.3 Business Case

Now the scope of this project is difficult to measure as I intend to more features as the app grows and take us shape. In order to help define my scope more clearly I will need to know my system boundaries due to my project being an application and as well as business process.

Problem Statements: "I can't keep track of my schedule"

"I'm lost and it's causing me to lose time"

I believe my application is a realistic need among delivery drivers. Due to my research, many delivery drivers go through this problem or taking a lot of time to deliver a parcel due to barriers such as traffic by not taking the quickest route. This need is the main driver of application. I intend to investigate in depth on what supporting technologies I will need in order to overcome this problem. I believe this solution l is main desired outcome. Once it has been measured to its full potential it determines the success of the application as well as other requirements as the project matures. Throughout the progression of the project, different alternatives to solve the main problem or take advantage of the opportunity will be assessed.

Varieties of risks are associated with the development of application. These risks will potentially cause problems to the development of my project and may have a negative impact on the solution. I plan to make my stakeholders aware of these risks for realistic expectations and for a shared understanding. I also plan to combat the potential risks to my project.

One of risks that can potentially cause a problem to development/success of my application is the implementation of the gathered requirements to develop the GUI (Graphical User Interface). The selection of an appropriate developer will be a difficult task and a risk to the development of the application. Another risk involved with this issue is the developer completing misinterpreting the stakeholder needs, vital requirements could be overlooked which will lead frustrating stakeholders and increase costs. The way I plan to combat this risk by thoroughly evaluate the developers and

skills with creating application GUI. A consistent discussion with the developer on the implementation of the requirements and regular progress update meetings will take place. A continuous addition of requirements coming to the picture is a risky activity. Stakeholders can even change their mind on existing requirements. How I plan to combat this risk is to have an understanding with the stakeholder that they must be responsible for making decisions and providing information in a timely manner. In addition, requirements should be evaluated and prioritised prior to implementation to the application. Overall cost will increase if requirements are being added during the implementation stage.

Communication is vital in my project with my stakeholders. Constant and clear communication must be taken with all my stakeholders is required to really make sure all their desired outcomes are produced. Listening and having an understanding my stakeholder's views and feedback can really help shape the operations of my application. The influence and power of my stakeholders can really affect the success or failure of my initiative.

1.4 Stakeholder List

The generation of my stakeholder list was made by identifying the main stakeholders that are affected by my proposed initiative or that share a common business need.

A. Supermarket delivery drivers
B. Parcel delivery drivers
C. Fast food delivery drivers
D. Taxi Drivers
E. Delivery Driver Employers
F. Automobile Association (AA)
G. Software developer
H. Project Sponsor
I. Road Safety Authority (RSA)

1.5 Importance/Influence Matrix

High   *Low*

Software Developer	*Supermarket Delivery Drivers* *Parcel Delivery Drivers* *Fast Food Delivery Drivers* *Taxi Drivers* *Project Sponsor*
Automobile Association (AA) *Road Safety Authority (RSA)*	*Delivery Driver Employers*

Low   **Influence**   **High**

Explanation of Importance/Influence Matrix

The diagram matrix above shows the highly important and highly influential stakeholders on the upper right quadrant of this matrix. These stakeholders consist of the main victims of the project.

The supermarket, fast food and taxi drivers are slightly less important compared to the parcel delivery drivers as they will be possible future users of the application but will be influential in terms of aspects associated with the application's desired features and also the proposed layout. The Delivery Driver Employers all have equal influence on the project due to the application brought forward by themselves to their employees but due to their overall use of the application, they will significantly have a less importance than the actual users of the application. The Automobile Association (AA) and Road Safety Authority (RSA) are seen as the bystanders of the overall project as they are seen and used for clarifications and logistics towards the use of the applications. So both these stakeholders will have only effect on certain aspects of the project.

The business analyst is most certainly the main driver of the overall project with huge involvement of the importance for gathering and subsequently documenting requirements for the website, however his ability to implement aspects such as design, features and content will be restricted to high level. This is where the software developer comes in placing him as highly important but low influential stakeholder on the upper left quadrant of the matrix

It's seen as the responsibility of the major stakeholders to develop a requirements list. The business analyst acts as facilitator in this project.

2. Requirements Elicitation Techniques

2.1 Survey

Survey Participants:

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Stakeholders

Distribution Method:

Email to participants with the survey attached.

Objectives of the Survey

The main objective of survey is to gather information from different stakeholders associated with my B-Ready app. The will help me identify requirements for the app and to discover demands for the certain app features. Delivery drivers will be encouraged to share and state their desired features for the app and I will also outline if they are interested in participating in further elicitation sessions in the future.

Survey Questions

> What is your gender?
> Male
> Female
>
> How often are you able to take the most direct route?
> Never
> Rarely
> Sometimes
> Frequently

> How frequently are you disrupted while on your journey?
> Never
> Rarely
> Sometimes
> Frequently

What type of vehicle do you use?

> Car
> Truck
> Van
> Bicycle/Similar

What is your age?

> 18-24
> 25=34

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> 35-44
> 45-54
> 55+

Please choose the most appropriate response:

I am

> Employed by a company on a full time basis
> Employed by a company on a part time basis
> Self employed

How often would you use an optimal route feature?

<u>Options</u>

> Never
> Rarely
> Sometimes
> Frequently

Would you be prepared to participate in gathering more information in the near feature?

E.g. Topic focus group session

> Yes
> No

Rank in order of importance from your view with 1 being the highest.

> Speed
> Quality
> Accuracy
> Being on time
> Positive attitude

Have you ever downloaded apps for your devices?

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➢ Yes-Always free
➢ Yes – Always paid
➢ Yes – Free and paid
➢ No

If B-Ready app had the following features, how would you rate their importance to you? Rank 1-5 with 1 being the highest (Comment)

What route planner app have you used in the past?

➢ Route Warrior Route Planner
➢ GetSwift
➢ Route4Me
➢ None

How helpful was this route planner app?

• Poor
• Okay
• Good
• Excellent
• Never used one

What mobile operating system does your phone offer?

• iOS
• Android
• Blackberry OS
• Windows

If this app was available on your device, how likely would you switch from your current route planner app to the B-Ready app?

➢ Very likely (after google map question)
➢ Likely
➢ Unlikely
➢ Not at all likely

If satisfied with the B-Ready app, would you recommended the app to a friend/fellow delivery driver?

➢ Yes
➢ No

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2.2 Brainstorming

Overview

The brainstorming session is conducted to gather viewpoints of stakeholders in relation to the desired features as well as the design and proposed layout for the B-Ready app.

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Objectives of the Brainstorming session

During the conduct of the brainstorming session, various stakeholders will be outlining their ideas for the app. A wide range of possible app features will be identified during the brainstorming session. Most of the ideas will be documented in my requirements specification document. Any relevant comments from the participants in the brainstorming session will be recorded and clearly defined within the requirements specification document. The benefit of this will help prioritization of the gathered requirements for classification and ranking by the business analyst in the future.

Participants: Classmates

Meeting Location: Room 1.05 in National College of Ireland

Date of Meeting: 22/11/2017

Time of Meeting: 10: 00 am

Brainstorming Session Rules

1) Participants can build on ideas stated from others during the brainstorming session. This skill will help being positive and build ideas.
2) Stay focus on the topic. This will help reach the intended target and objectives throughout the brainstorming session. Otherwise, we can diverge beyond the scope.
3) The meeting must remain professional and all participants must stay focused on the agenda, which will be outlined.
4) Participants will be asked to leave the brainstorming session if their behaviour is seen as unacceptable, no prior warnings will be issued
5) Any participants that arrive late will be last allocated time slot in expressing their ideas, these participants will only enter the room when it's seen as appropriate to do so.
6) The session will last for at least thirty minutes and participants must arrive thirty minutes before the meeting begins to ensure the meeting starts on time.
7) All participants will be allocated a time slot to express their ideas towards the topic.
8) One conversation at a time. This will more than likely help the other participant build on the idea that has been expressed because all participants will be paying full attention
9) No judging. Any idea that comes to mind can be expressed in order for other the participants to be aware and build on it.

2.3 Interviews

Objectives of the Interviews

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This elicitation technique will be used to directly communicate with my stakeholders who are related to my innovative project by direct questions to my stakeholders in order to obtain information. I plan to have a structured interview, which will have predefined set of questions as it will be a semi structured interview. The stakeholders will represent the interests of what they would like to see on the app. Consequently, my desired outcome from these interviews is to gather possible features and any experiences that my stakeholders are facing that could be resolved through this app. I will record the responses of the interview in order to ensure the information is obtained and gathered from the interview as well as finishing within the allocated timeframe. An allocated time and date will be agreed with each interviewee.

Interview Questions

1) What is your overall view with past route planner applications you've used?
2) What is/are your primary reason(s) for using route planner applications?
3) Does your current route planner satisfy your needs?
4) What features aren't being implemented/delivered from route planner applications you've used that you feel should be incorporated onto my applications?
5) Which type of page layout would you find most appealing? Eg static, dynamic, responsive
6) What set of pages would you like to see?
7) What kind of smartphone do you use?
8) Do you have or follow a routine when delivering to multiple destinations?

Interview Questions (Software Developer)

1) What dynamic constraints does my project need to meet?
2) Are these features that I have put forward to you a difficult process? If so what steps can we be done differently or simplified?
3) In terms of implementing gathered features, what do we need to accomplish to make this successful?
4) Which platform do you believe the B- Ready application should be available on?
5) What should be considered before developing this application?
6) Do you think it would be difficult to develop the application idea that I have put forward to you?
7) What non- functional requirements need to be really focused for the application I have put forward to you?
8) What are the possible risks of implementing the features that I have put forward to you?

2.4 Prototype

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Objectives of Prototype

This project prototype is a visual representation of the B-Ready application. As the progress report, predominantly the prototype will be developed with the finalised requirements. My interpretation and understanding of each stakeholder's needs will be shown on this prototype. The analysed and gathered results from the elicitation techniques that are conducted which are the survey, brainstorming session, and interviews with my stakeholders will be used to develop my prototype of the B-Ready application.

The main critique of my prototype of will be the stakeholders as they will be encouraged to point out areas of improving the prototype throughout the development until its finalised. From this action they can request for newly desired features or change the prototypes design or layout. The Prototype will minims the chances of misunderstanding the business analyst and the main stakeholders that are associated to the B-Ready application instead of interpretation. A low fidelity (first version) and high fidelity (second version) and finalised prototype will be developed for the B-Ready application. First Version of the prototype will be completed for the mid-point presentation with my personal visual of the prototype. Second Version will be completed on January 26th 2017 and will be conducted after the interview with the software developer. The finalized version will be constructed based on the final recommendations made by various project stakeholders and gathered results from other elicitation techniques I plan to conduct.

I will follow a development checklist throughout the progression of the three versions of the prototypes which include interpreting the views made during the brainstorming, analysing the interviews results had with stakeholders and developer and necessary modification or changes to the prototype based on the judgment and preferences expressed by the stakeholders

The importance of me developing a prototype is it will show a possible final and real, in terms of the amount of stages it goes through, version of the B-Ready application. It also identifies which areas, aspects are worthwhile and which parts need revising or no longer needed. Another important reason for me creating a prototype is to allow the developer to not only evaluate the design but also test the application before going into full production

Participants

1. Software Developer
2. Service Drivers

2.5 Interface Analysis

I plan to develop a context diagram after I conducted my interviews and gather all results from survey respectively. This detailed diagram will illustrate the interface types which are associated

with the application. Each of the actors, which are known as the stakeholders will have access to all aspects of the B-Ready application. This diagram will outline the interactions which will take place between the stakeholder and the B-Ready application. The diagram will assist the development discrepancies such as the user shouldn't have access to admin pages. Once the context diagram has been completed I will gather feedback from project stakeholders and supervisor about the diagram and make any necessary modifications if needs be.

UML Diagram Name: B-Ready Mobile Route Planner Context Diagram

UML Diagram Due Date: 27th March 2018

Context Diagram Date of Completion: 30th March 2018

An application comparison will be done because this is the backbone of my digital presence and it is also critical to out- optimize my competition particularly being in an era where mobile optimization is so important. I will be looking at certain factors such as number of pages my main competitors offer, are these wide range of pages detailed enough for the users, navigation through pages, assessing my competitor's application to analyse how I can gain a competitive edge in terms of making my application more user friendly and assess my main competitor's application to see if it loads quickly and review all mobile devices platforms they are available on. I will also review if possible my competitors prototype stakeholder- application interaction. I also plan to evaluate prior elicitation results to identify potential interface types. All these factors will help me conduct an effective interface analysis on my competitor's applications by gaining an insight on what is display at glance. The information gathered will all feed into the high-fidelity prototype that will be displayed at the final presentation.

Resources required

1) Lenovo laptop
2) Results of elicitation techniques: survey, brainstorming session, interviews conducted and an interface analysis will be used to develop the prototype.
3) Blasmiq to construct the first and second version prototype
4) WordPress to construct a website display for the showcase presentation

2.6 Requirements Workshop

Workshop Preparation Checklist:

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- Create the requirement workshop agenda including the initial scope.
- Identify key stakeholders that will attend the requirements.
- Organise all relevant resources prior to the requirement workshop.
- Prepare and document an objective and desired outcome of the requirement workshop.
- Invite participants to the requirement workshop via email or text message, stated the location, date and time the workshop will take place.
- Ensure that all participants are available to attend the requirement workshop on the proposed data and time written in the email or text message.

Participants:

1) Business Analyst/App Sponsor – This stakeholder was appointed as facilitator, coordinator and scribe of conducted requirements workshop
2) DHL (Delivery) Driver
3) Taxi Driver

Workshop Location:

Dinn Ri Restaurant, Carlow

Date of Workshop:

30th of March

Time of Workshop:

2pm – 3:30pm

Objectives of Workshop:

The reason behind this organised requirement workshop is predominantly discuss layout and design elements for the B-Ready mobile application. The primary of this requirements workshop that will

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take place is obtain a general understanding of the type of layout that various of the B-Ready applications will have including design elements within these pages. This will be achieved by the reviewing the first version prototypes for the pages that will be included and available to the end user. This also will be achieved by viewing competitor's applications in order to improve user experience and to achieve my objective of making my application user friendly. While doing this with the participant's new features could be identified New features may be identified or existing features may be redefined during this requirement workshop session in order for the end user to utilise the application better.

Agenda:

- Definition of the purpose of the requirement workshop to the participants.
- Outline ground rules during the requirements workshop to the participants.
- Evaluate the first prototype with the participants
- Research and evaluate competitor websites for potential ideas with the participants
- Identify new features or redefine existing features gathered from elicitation techniques conducted.
- Obtain a general agreement among participants relating to application design and layout.

Resource Required:

- Lenovo Laptop
- Private seating area in Dinn Ri restaurant
- Microsoft Word to document any key comments during the workshop
- Microsoft PowerPoint to display the first version of the prototype

Workshop Rules:

- All participants should arrive at least thirsty minutes before the workshop begins
- Participants are free to express their idea at any point but all comments should relate to the topic that being discussed
- The facilitator will have control of all aspects related with the workshop itself
- The workshop should remain professional and participants should really stay focused on the topics outlined on the workshop's agenda.
- All participants should actively be listening to the instructions being distributed.
- Any disrupted behaviour could result in the workshop being postponed or a participant being asked to leave.
- Mobile are only allowed to conduct research, other than that they are not permitted during the workshop.

Final Deliverables:

- A Microsoft Word document which contains a list of desired changes to the layout of the prototype along with an outline of possible new or redefined features to the B-Ready application.
- Balmsiq wireframe which contains prototype version one that will be displayed in a Microsoft document.

3. Requirements Elicitation Techniques Results

3.1.1 Brainstorming
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My brainstorming session kicked off with me presenting my idea to the participants and the areas of focus in order to generate requirements that will be incorporated into my proposed application and for an effective result of the brainstorming session. We decided to use a mind map as the brainstorming method for the entire session. Each participant expressed their ideas towards the topic within an allocated time slot that was given to them at the start of the session. The first participant emphasis on the purpose of the main goal of the application by providing a delivery driver with an optimal route for fast efficient service. He expressed what I should really focus on ensuring this main goal is fulfilled is expressing my idea to the RSA (Road Safety Authority) and incorporating their consistent updates on street traffic lights into my application. This will help my application generate the quickest route and also keep them updated on their travels to their destination. This participant also suggested adding a voice over feature on the application for it call out directions and keep them updated on hazards and warnings on their travel. This is an additional feature for safety reasons.

The next participant that spoke suggested a live messaging system with the customer. He believed this would be a nice feature to have to inform the customer on last minute updates by the delivery driver acting as a rep. This would be a benefit as the customers can also inform the delivery drivers with last minute updates on changes. The next participant idea expressed an organisational feature for the convenience of the delivery driver. This will involve the input of several customers including the destination to. The delivery driver will have the power to input the current status of the delivery. Red will signify 'not delivered, blue will signify 'in transit' and green will signify 'delivered'. This will help the delivery driver track the status of the many parcels they may need to deliver on a daily basis. This can also be sorted by name, company ordered from etc. This participant also suggested a performance tracker feature. This will show the speed they delivering their parcels over the course of the day, month and 6 months. With daily targets appearing on the application from the input that was given from the delivering companies. He also a suggested a feature where the driver can view their delivery history and will be notified on.

The participant suggested a feature where the app will automatically create deliveries for the user based on the customer's availability on collecting their delivery. The delivery driver will just have to pick a start and duration period. It will make things easy for delivery drivers to see upcoming deliveries without re-entry. The final participant suggested a feature where the delivery driver can offer to send the customer a link from the app to view a live feed tracker as make their way to the destination. This will give the customer a chance a to watch as their parcel arrives at the doorstep. He also suggested a feature that can record the customer's signature as the received the parcel for proof of delivery.

Overall, it was a successful brainstorming session with plenty of ideas expressed and generated. From all the gathered requirements from the brainstorming session, going forward I will prioritise them using the MoSCoW solution. This discussion will be had with my software developer. I will take all of them into account and incorporate them into the user Graphical User Interface (GUI).

Requirements Gathered from Brainstorming

1. Application should incorporate RSA (Road Safety Authority) consistent updates on street traffic lights
2. Application should have a voice over feature

3. Application should have a live messaging system
4. Application should have an organisational feature for delivery drivers
5. User should be able to update status of the delivery e.g. green will signify 'delivered'
6. Application should have a performance tracker feature
7. User should be able to view delivery history
8. Application will generate deliveries for the user based on company's customer's orders for the day.
9. Application should have a live feed feature
10. Application should have a feature that can record the customer's signature.

3.1.2 Interviews

Interview Question & Answers:

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Interview one:

Participant: Service Driver (Taxi)

Participant name: Interviewee 1

1.What is your overall view with past route planner applications you've used?

Answer:

The taxi driver that participated in my interview that was employed for Carlow Cabs said he was only familiar with mainly two route planner applications which were Garmin and Route4me. He utilised Route4me a lot more due to reason he believed it was more accessible because to him it was an application on the device. He believed it was user friendly and had more features than the Garmin application. His main reason for using the application was to reach his intended destination in efficient time by taking the quickest route which the application provided. The interview participant mentioned one major downfall he had with the Route4Me application was its poor software that could not locate certain addresses and locations the interview participant intended to go to. He stated out of 5 he would give the application a 3 mainly because of its reliability in important situations to providing an optimal route from his current location to his destination that he inserted.

2.What is/are your primary reason(s) for using route planner applications?

Answer:

The Interview Participant stated his primary reasons for using a route planner application was he particularly liked to follow a route that was optimized in order to get to his intended destination. Another reason the project stakeholder stated was the positivity it brought to customer satisfaction on various occasions. The reason being, the interview participant was able to be reach the customers drop off point on time. The interview participant also mentioned another reason that stood for me which was the evident saving he was making on the use of fuel.

3.Does your current route planner satisfy your needs?

Answer:

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The interview participant answered this question very briefly by stating it satisfy his primary needs but require an update on features. He believes it should offer a little bit more for service drivers for example a software updates for certain address and locations and performance and route trackers.

4.What features aren't being implemented/delivered from route planner applications you've used that you feel should be incorporated onto my applications?

Answer:

The interview participant suggested a range of features he would like to be delivered on the application such as the main function of the application which is an optimal route at a particular time in order to reach the destination by picking up road blocks, traffic jams etc. He emphasized the implementation of this should be close to perfection as he believed this is a major selling point of my application. He stated he always wants to deliver customer satisfaction and would like a feature or page that shows his performance throughout the day, week, month etc. He believes with this it would help motivate him to do better in terms of performance which he'll be recognised for in the company and may be rewarded due to the incentives that come with his role as a taxi driver. Another feature the interview participant indicated he would like to see implemented/delivered in my application is to have access in the application or be directly linked to the weather conditions in Carlow town on any giving day for safety travelling to his drop off point. He finally mentioned the user should be able to access the applications social website page to express their feelings and experiences with using the application. He felt this would be a great way to gather feedback for consist improvement.

5.Which type of page layout would you find most appealing? Eg static, dynamic, responsive

Answer:

The interview participant would be happy with a responsive page layout mainly because the route planner he previously used in the past had responsive pages while navigating throughout the application. He was mainly familiar with only responsive applications.

6.What set of pages would you like me to incorporate in my application?

Answer:

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The interview participant mentioned I should keep my pages as simple as possible and user friendly which was my objective. He believed the user should be able to sign up, sign in or use the application as a guest which would take three pages for this. In relation to signing in, the interview participant suggested adding a function where the user can sign in with their Facebook or Twitter and he also stated he would like to create a password that needs both numbers and letters. The interview participant mentioned I should include a page where the user can save locations for convenience. A suggestion that stood out to me from the interview participant was to include a map page with a visual of possible routes. The reason the interview participant mentioned this was if he was in a possible situation where he had multiple destinations he could visually see if his next journey was close by. He mentioned he would like to see a standard about page, account page in order to manage his details and a favourites page where he can view his favourite routes. He emphasised a lot on a performance page which he would like to view his performance throughout the day, month etc. The interview participant felt a lot of functionality should go into this area as he believed this would be another unique selling point for service drivers.

7.What kind of smartphone do you use?

Answer:

The interview participant uses an iPhone 7 with the operating system iOs due to this he would like to have the B-Ready application available in the apple store.

8. Do you have or follow a routine when delivering to multiple destinations?

Answer:

The interview participant mentioned he's not often in a situation where he may have to go multiple drop off points but the few times he had multiple drop off points he never followed a routine. He planned the route based on the customer's comments on their destination which made it difficult for him to plan the quickest way to get through his journey. He suggested as a little competition he would like to see a generated scoreboards of the best performers with his connected friends or contacts that use the B-Ready application

Interview two:

Participant: Service Driver (Postman)

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Participant name: Interviewee 2

1.What is your overall view with past route planner applications you've used?

Answer:

The second participant in my second interview worked for Carlow's An Post and he was only familiar with one route planner application that he used quite frequently which was Goggle Maps. He utilised Google Maps a lot due to the reason he was only aware of this route planner application due to its recognition among his colleagues. He described the application as 'fairly regular' route planner application because of its lack of features other than providing a route to his intended destination. His main reason for using the application was to reach his intended destination in efficient time by taking the route which the application provided and for work. He stated the application usually provided a route but wasn't necessarily the quickest route sometimes couldn't pick up the location he intended to travel. The interview participant mentioned one major downfall was not being able to enlarge the picture of his destination and also the lack of information provided on previewing his final destination. He also disliked the fact he was making a loss on fuel due to the time wasted of the application not providing the quickest at all times. He stated out of 5 he would give the application a 4 mainly because of the use it provides him during his daily travels during work and also outside of work.

2.What is/are your primary reason(s) for using route planner applications?

Answer:

The interview participant stated his primary reasons for using a route planner application was particularly for work for areas he wasn't familiar with around Carlow. Another reason The interview participant stated was the versatility of the application he used. He really liked the fact he could not only use it as a requirement at work but also outside of work as a day by day route planner.

3.Does your current route planner satisfy your needs?

Answer:

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The interview participant answered this question very briefly by stating it satisfies most his primary needs but could provide so much more. He believes it should offer a lot more for service drivers such as a pre-program feature allowing to the user to enter all the locations the user he intends to reach. The way this feature should be used according to The interview participant is allowing the user to input a maximum of 10 locations and the application produces the quickest route in real time.

4.What features aren't being implemented/delivered from route planner applications you've used that you feel should be incorporated on to my application?

Answer:

The interview participant suggested a various feature such as a pre-program feature that would allow the user to input a maximum of 10 locations and the producing the quickest route to reach these locations all in real time. He saw this as good selling point because of the convenience it would bring to users in the same occupation as him. He stated he would like the application to locate the nearest petrol station within the application for convenience and to save time. He suggested to focus on the type of information that would be provided on the preview of the user's destination The interview participant made a point around not only providing the quickest route but also being able to see alternative routes to that particular destination. The reason being is he would like to see if this route was close to this next destination. He said he would like to see this implemented somehow around his desired pre-program feature. The interview participant mentioned to add a tutorial feature. He believed this would be great page to implement for people who are using the route planner for the first time and would like to fully utilize the application's features. The interview participant mentioned Google Maps was very static on which lane to use when travelling and he suggested I should incorporate this to my application with a voice over system announcing when to switch lanes in efficient time. Around the voice over feature, he believes the user should be allowed to turn on/off this feature and also the application should have a speech recognition. He stated this should allow the user search for their location by voice by talking to B-Ready application. The interview participant suggested I should have a share function where he can make his friends and family members aware of the application for them to utilize

5.Which type of page layout would you find most appealing? Eg static, dynamic, responsive

Answer:

The interview participant would be happy with both a dynamic and responsive layout. He emphasised on producing a quick responsive application because of the importance a route planner

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application is to him on daily basis. He felt a responsive seemed like huge advantage because of the benefits it brings that he's aware of.

6.What set of pages would you like me to incorporate in my application?

Answer:

The interview participant mentioned I should have the basic pages include such as the map page, sign up age and the sign in page. He mentioned incorporating google maps within the map page for most people's familiarity. The interview participant mentioned I should keep these pages as simple as possible with simple navigation through pages and usability. The interview participant mentioned I should include a tutorial page where the user can view how to make full use of the applications features. A stand out comment made by the interview participant was a community page. He described this page should include other users can make comments about certain areas within their town in real time. Content can be viewed by county and also date within the town. He made a suggestion for a scheduling page that allows the user to schedule their journey within the application for a certain time. He said this wouldn't really apply to him but for other service drivers this would be convenient.

7.What kind of smartphone do you use?

Answer: The interview participant uses a Samsung S6 with an android system. As a result of this he would like to see this in the android store and available on Android operating system.

8. Do you have or follow a routine when delivering to multiple destinations?

Answer:

The interview participant mentioned he mostly follows the same routine every day and he would cover approximately 120km a day. He stated his routine would rarely change unless particular drop off points gets added to his routine for the day or week.

Interview three:

Participant: Software Developer

Quam Jimoh
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Participant: Interviewee 3

1.What dynamic constraints does my project need to meet?

Answer:

The interview participant mentioned the dynamic constraints my project must meet and I need to be aware of from a developing point of view are the time constraints. Making the development team aware of the deadlines by constantly communicating with them and making sure there all compatible. He mentioned technical constraints could arise as well during the begin of developing the application. He stated the issue around this constraint is in terms of the data that can accessed in order to be fed into the application. He made me aware that they may be limit data I can access that can feed into the application due to the reason not every data is outsourced to the public. He then stated luckily enough the sort of data information I'm after will more than likely be available. General amount and use of human resources dependencies may be a constraint depending on the size of the development team He finally stated on this question that I should be aware that more constraints may arise as development progresses due to change of requirements etc. He suggested the way around these possibly invisible constraints is to engage the team with resources.

2.Are these features that I have put forward to you a difficult process? If so what steps can we be done differently or simplified?

Answer:

The interview participant stated the features I made him aware of in the interview brief and also during the interview would be straight forward with the right timeline. He mentioned in order for my main feature to work computer vision and convolutional neural networks will need to be used for reading satellite images from google earth or similar applications at close range of the streets. He mentioned many functions need to be in sequence such as the address generated, satellite images then been passed on to the model being used. He mentioned to consider constantly updating my application. The most complex feature I put forward to him was the voice – over feature. He felt this feature would take time to implement. He mentioned a way around this is make use of Google api's and log frameworks within the application such as a text to speech platform that would feed in the data. He suggested an extra feature for better routes to be generated to the user in the future which was a mini survey/feedback on their journey after they have completed it. This would be a great way to gather information for further improvements on generated routes for the user mainly using data analytics/mining.

3.In terms of implementing gathered features, what do we need to accomplish to make this successful?

Answer:

 The interview participant mentioned what needs to be accomplished is the models to be used within the database to generate the data as quick as possible and in the correct possible ways. He

mentioned when implementing certain features, he suggested the languages that should be used should be Python and C++. The reason being these two languages are work well with training models and He stated Python is very easy to write from a developer's point of view and C++ is continual, less expensive and help make your models work better. He suggested to use two languages in sequence if possible because they work good together and also for scalability.

4. Which platform do you believe the B- Ready application should be available on?

Answer:

The interview participant believes the application should be on both Android and ios platforms but he also mentioned certain things I should be aware of before making my final decision on what platform I should make my application available on. He said I should be aware of restrictions that apple have incorporated in ios which may lead to me reviewing some of the features I would like to implement. He then mentioned that Android is not as restrictive so more features to implement.

5. What should be considered before developing this application?

Answer:

The interview participant mentioned I should plan for maintenance once the application has been fully developed. He suggested this because this sort application isn't a one-time deal. He stated I must have a plan around this and also plans to incorporate updates and additional developer expenses in the future. 'Incorporating the right models need to be decided' stated by the interview participant. He had a fear that the models could cause a problem while calculating the best route such as picking up parked cars and trees. He then said the good news is with the right choice of model the behaviour of the model may be trained over time to not include such things while calculating the quickest route. He briefly mentioned I should consider the stack languages and technologies towards an application like this which would be crucial. He said I should consider add a function that notifies the user or the model within the application when the fastest route is no longer the quickest due to real-time changes. He stated this really depends on the path I want to take and what is more convenient. He mentioned a little function I could add is a little mini survey after the user completes their journey which will include questions like 'how many times did you stop' for system improvements on development in the future.

6. Do you think it would be difficult to develop the application idea that I have put forward to you?

Answer: The interview participant felt this application idea that I put forward to him wouldn't difficult to develop because similar ideas like my proposed application has been done which means a

large amount of databases will be available to the development team that can just be easily implemented into the B-Ready application. A crucial stage he feels to make sure the features, especially the main feature, are implemented smoothly really all depends on the model that is developed. If the model doesn't match it could lead to problems during the development and possibly maintenance.

7.What non- functional requirements need to be really focused for the application I have put forward to you?

Answer:

The interview participant mentioned two non-functional requirements I should really focus on. The first one he mentioned is implementing an entity that will not cause a crash in the application. A majority of users will be using the application in crucial situations and the application main functions must be consent accessible and available. Another none functional requirement he mentioned I should focus on is Privacy. The reason for this because I will be gathering user's information from the application and I must be the only person that can manipulated this data that is gathered. Administration access availability is as important the other two non-functional requirements mentioned by the interview participants.

8.What are the possible risks of implementing the features that I have put forward to you?

Answer:

The interview participant stated on of the possible risks of not only implementing the features that I have put forward to him but for the general use of the application is connectivity risks. This will involve dealing with the issue of the user within an area of not having any mobile data or Wi-Fi connection. Another risk around the implementation of all the features I put forward to The interview participant is a possibility of a slow response from the application. The interview participant mentioned a possible solution is to making sure a lot of configuration is done before the user begins driving. A stand out risk from the application features I put forward to The interview participant is user dealing with many interactions from the application. This could turn into a safety issue because the user could turn their attention off the road and cause dangerous driving. So trying to make sure I cut down the interaction to minimal while the user is driving is something I need to consider.

Interview Requirements Gathered

The three interviews delivered very valuable information towards the B-Ready mobile application.

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These recommendations made by the stakeholders will improve the user experience of the application.

The following requirements were:

Interview 1 Requirements Gathered

1. Application should have software updates for certain locations and address
2. Application should include a route tracker
3. Map page should have a visual representation of road blocks, traffic jams on possible routes that can be taking
4. Map page should have a visual representation of all possible routes that the user can take to their intended destination.
5. Application should have performance page.
6. User should be able to view their quickest journey they've taken during the day, week and month on the performance page.
7. Application should generate a scoreboard from connected friends who use the B-Ready application.
8. Application should be able to establish weather conditions for different locations.
9. Application should include an optional button for notifications on weather conditions for different locations.
10. Applications should have responsive page layout.
11. Application should have a sign in page.
12. Application should allow user to sign in through their Facebook and Twitter.
13. Application should allow user to register through their Facebook and Twitter
14. Application password should consist of both numbers and letters.
15. User should be able to access application social media pages through application.
16. User should able to save locations they have previously travelled to.
17. Application should have an account page.
18. Application should allow the user to manage details within accounts page.
19. Application should have an about page
20. Application should have a favourites page.
21. Application should allow users to manage their favourites routes eg delete routes from favourites list.
22. Application should be available to download in the App Store on the iPhone.

Interview 2 Requirements Gathered

1. Application should have a pre-program feature.
2. Pre-program feature should allow user to add a maximum of 10 locations
3. Pre-program feature should calculate quickest route to reaching a maximum of 10 locations in efficient time.
4. Pre-program feature should calculate the quickest route in real-time.
5. Application should be able to locate the nearest petrol station
6. Application should display the nearest petrol station on a map.
7. Application should locate the nearest petrol station in terms of price.
8. Application should preview relevant information on the user's destination
9. Application should provide alternative routes.

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10. Application should provide a tutorial page.
11. Application should have a tutorial video in the tutorial page.
12. Application should allow users to watch a tutorial video on a particular feature.
13. Voice-over feature should announce when to switch into the most convenient lane.
14. Application should have speech recognition.
15. Application should allow user to turn on/turn off voice feature.
16. Application should have a dynamic/responsive layout.
17. Application incorporate Google's maps and should be displayed within the map page.
18. Application should allow user to share application with user.
19. Application should have a community page.
20. Application should allow the user to search by county in the community page.
21. Application should allow the user to search by date in the community date.
22. Application should allow user to comment on other user's posts
23. Application should allow user to view other user's posts.
24. Application should have a scheduling page.
25. Application should notify user the journey set within the scheduling page
26. Application should be available for download in the Android Store.

Interview 3 Requirements Gathered

1. Application needs to incorporate Computer vision and convolutional neural networks.
2. Computer vision and convolutional neural networks must be able to read satellite images from Google Earth or similar applications.
3. Application must be constantly updated.
4. Application should incorporate Google API's and log frameworks
5. Voice Feature should feed data from a text to speech platform.
6. Correct models must be implemented
7. Application should be developed with Python and C++ coding languages.
8. Application should be implemented for both Android and iOS platforms.
9. An entity should be incorporated to avoid the application crashing.
10. Application should notify the user when the current route their following is no longer the fastest route.
11. Application should include a mini survey after user completes journey.
12. Admin should be able to access and manipulate user data.
13. Application should have many configurations done before use.
14. Application should have a mini survey/feedback after user completes journey.
15. Admin should have full control of user's username and passwords.
16. Administration login should be available

3.1.3 Survey

What is your gender?

80 responses

- Male
- Prefer not to say
- Female

82.5%

13.7%
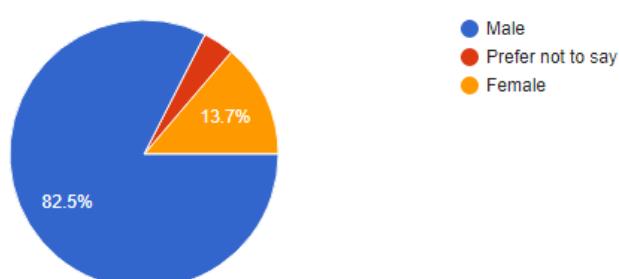
What is your age?

79 responses

- 18-24
- 25-34
- 35-44
- 45-54
- 55+

58.2%
20.3%
10.1%
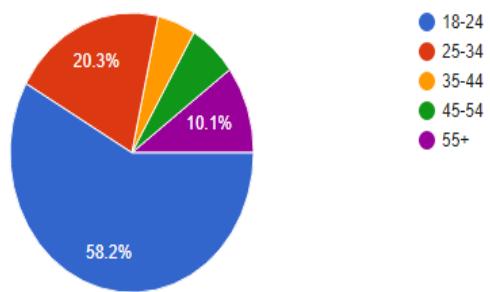
What type of vehicle do you use?

79 responses

- Car
- Truck
- Van
- Bicycle/Similar

70.9%
8.9%
12.7%
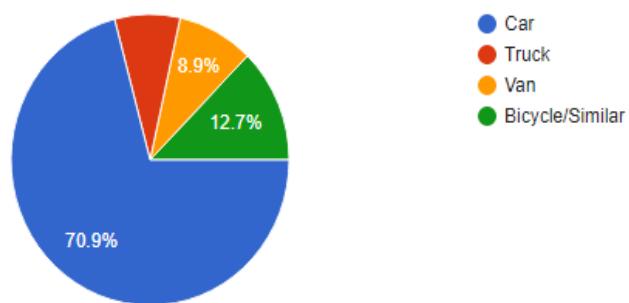
How frequently are you disrupted while on your journey?

79 responses

- Never
- Rarely
- Sometimes
- Frequently

31.6%
35.4%
20.3%
12.7%

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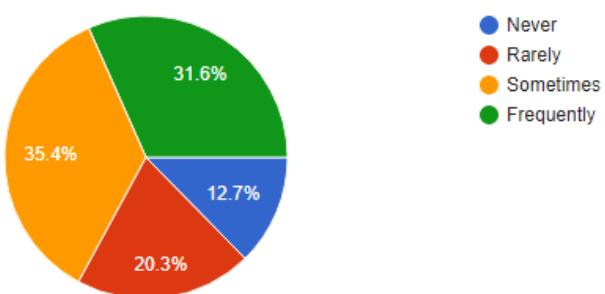
How often are you able to take the most direct route?

79 responses

- Never
- Rarely
- Sometimes
- Frequently

36.7%
7.6%
45.6%
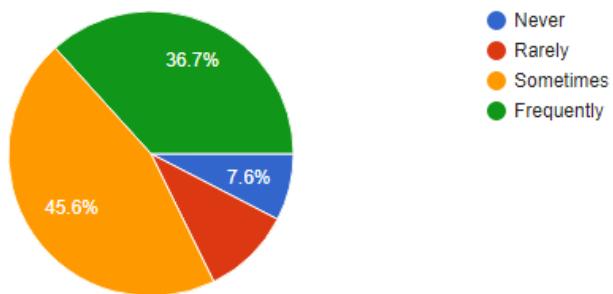
How often would you use an optimal route feature?

79 responses

- Never
- Rarely
- Sometimes
- Frequently

35.4%
15.2%
20.3%
29.1%
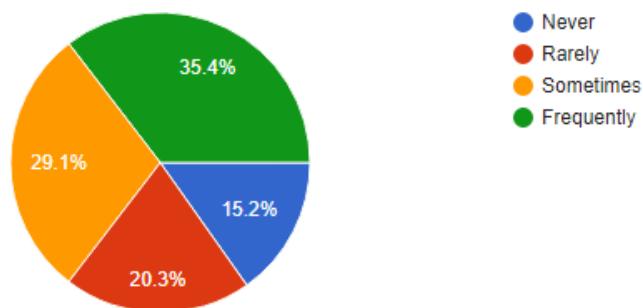
Please choose the most appropriate response: I am

76 responses

- Employed by a company on a full time basis
- Employed by a company on a part time basis
- Self employed
- Student
- Student
- Unemployed
- Unemployed Student

32.9%
11.8%
44.7%

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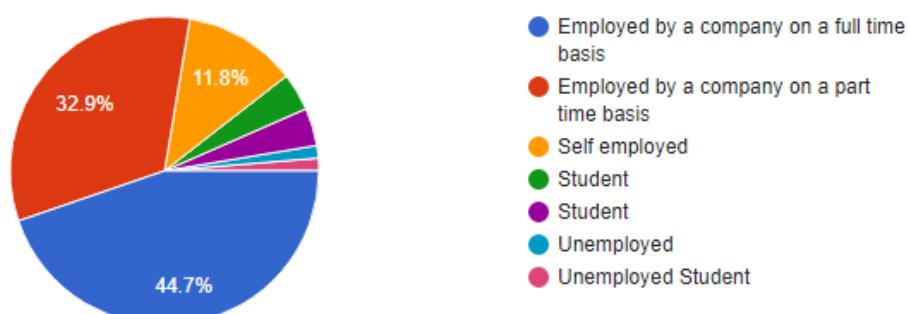
Rank in order of importance from your view with 1 being the highest
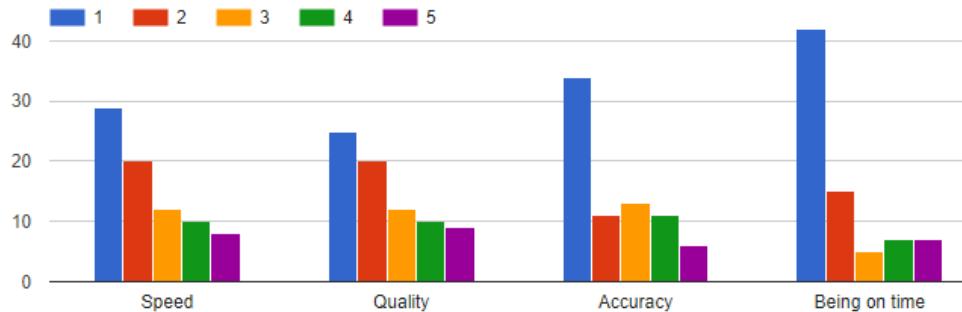
Have you ever downloaded applications for your device from the app store?

80 responses
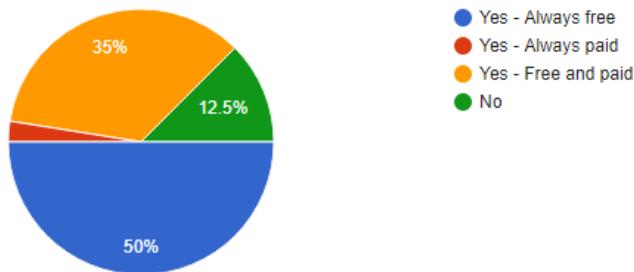
## What route planner application have you used in the past?
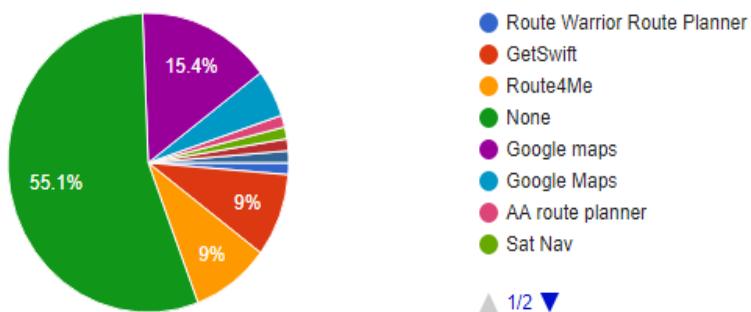
78 responses

How helpful was this route planner application?

80 responses

- Poor
- Okay
- Good
- Excelent
- Never Used One

42.5%
12.5%
21.2%
22.5%
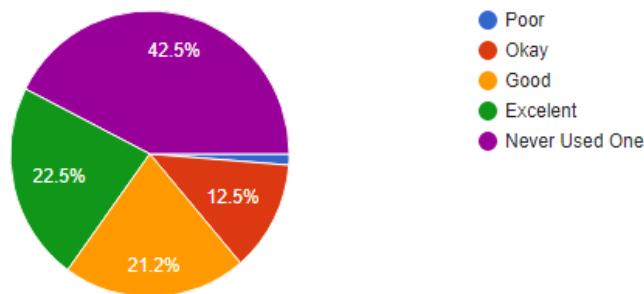
What mobile operating system does your phone offer?

80 responses

- iOS
- Andriod
- Blackberry OS
- Windows

35%
58.8%
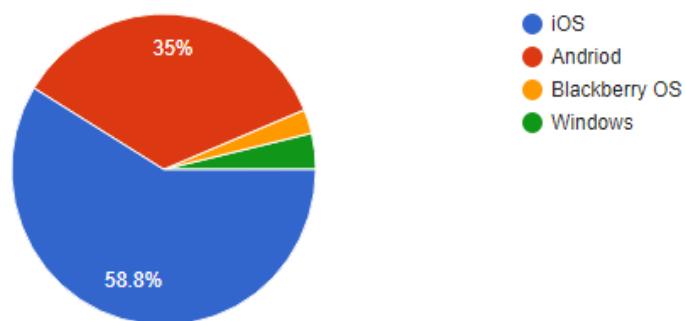
If this application was available on your device, how likely would you switch from your current route planner application to the B-Ready application?

80 responses

- Very likely
- Likely
- Unlikely
- Not at all likely

56.3%
10%
31.3%

Quam Jimoh
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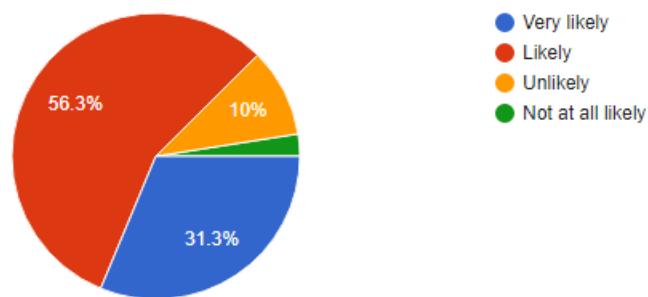
What route planner application have you used in the past?

78 responses

If satisfied with the B-Ready app, would you recommended the app to a friend/fellow delivery or service driver?

78 responses
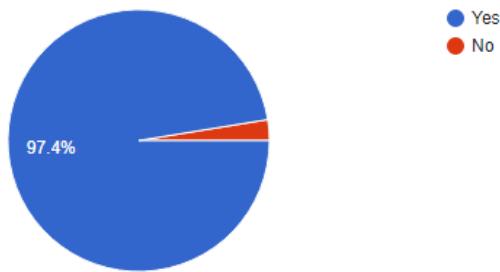
Would you be prepared to participate in gathering more information in the near future? eg Topic focus group sessions, interviews

80 responses

Quam Jimoh
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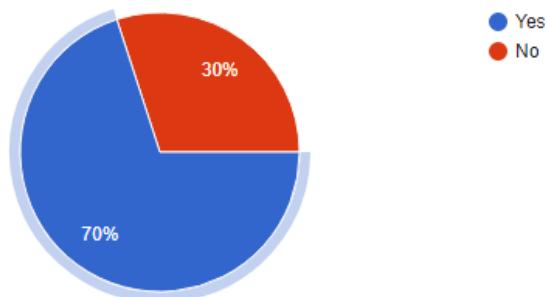
Survey Conclusion

The stakeholders that completed the B-Ready application were mostly male in terms of gender type with 13.7% were female who completed the survey. Age group varied with mostly 18-24 and 25-34 year olds that completed the survey as predicted and a viewpoint that was captured from the completed survey was 70% own a car. An equal balance was captured with both 8.8% of those who completed this elicitation survey drive a van and a truck. A wide variety of viewpoints were captured during this process, which was one of my objectives for this survey with a total of 80 responses captured. From the results of the B-Ready survey, 31.3% of the stakeholders who did the survey are **frequently** disrupted while on their journey while 35% are **sometimes** disrupted while on their journey. 46.3% of those who took my survey are able to take the most direct route sometimes during their journey and a total of 54.4% have not utilised a route planner application before. As a result of this, I understand the main feature of the B-Ready application is a real need in my target market. A significant quantity of the stakeholders said a voice- over feature, notification on upcoming traffic jams and an organisational feature would be important to them on the B-Ready application. These features should therefore be incorporated onto the application as they seem to be the high priority features. Google maps was the most used route planner application in the past among the stakeholders who take part in the survey with **GetSwift** and **Route4Me** finishing just behind at 8.9%. As a result of this, I will view these three applications during my interface analysis in order to gain competitive advantage on the B-Ready's interface, design, usability and functionality.

Most stakeholders said they would always download free applications. With this option standing at 49.4% and 39.4% said they always download free and also pay for applications available in the app store, I have concluded that I will make a standard version of the B-Ready application free to download and a premium version with additional features available at a standard fee. A significant amount of users selected 'being on time' as the most important out of a 5 options. This is another justification to me the real need of the main optimal route feature of the B-Ready application and a 36.3% of the stakeholders said they would use an optimal route feature frequently. With IOS and Android the most selected operating system that the stakeholders have to offer, B-Ready application will be made available on both platforms. A function that allows the users to share the application with fellow colleagues and friends will be incorporated onto the application due to the fact that 97.5& of the stakeholders said they would recommend the B-Ready application with friends and colleagues.

Requirements Gathered from Survey

1. B-Ready standard version should be free.
2. B-Ready premium version should have additional features at a standard fee.
3. B-Ready application should be available on both iOS and Android platform
4. User should be able to share application with others.

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3.1.4 Interface Analysis

UML Diagram

B-Ready Route Planner Context Diagram 1
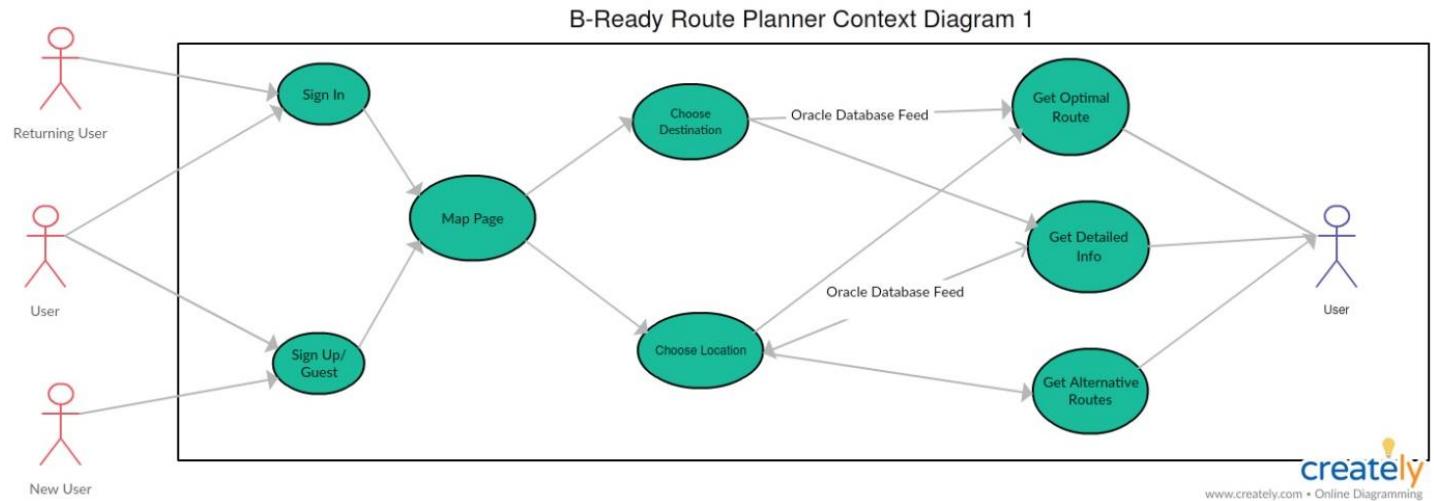
B-Ready Route Planner Context Diagram 2

Quam Jimoh
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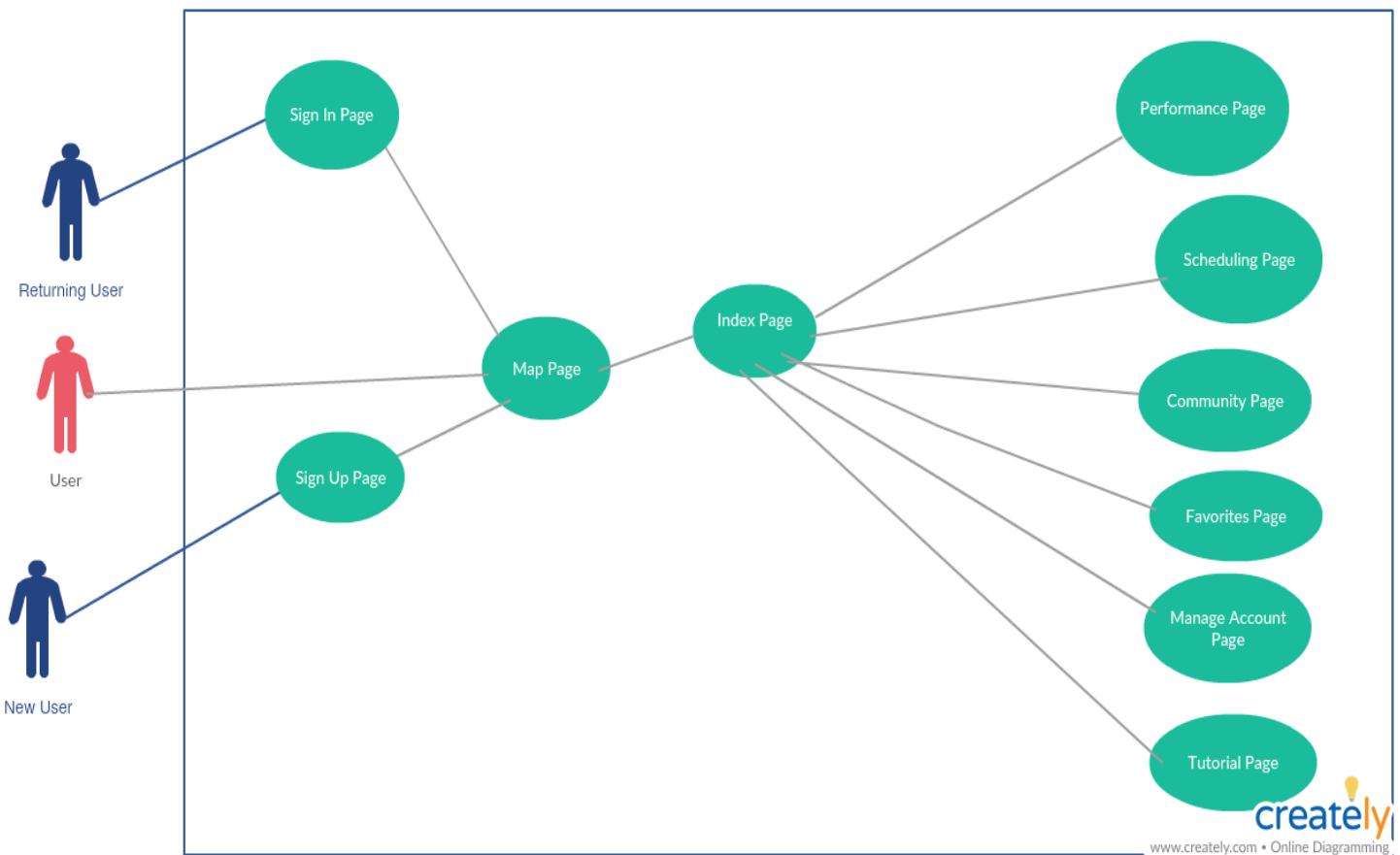
UML Diagram Conclusion

The UML diagram visually portrayed is broken up into two showing the user/customer interaction with the main feature with the B-Ready Route Planner application and the users interaction with the set pages within the application. The colour arrows represents various use cases that a returning user or new user would be associated with in the application. With just two main actors associated with my application, both of them will have a relationship all user cases in the diagram.

In **UML Diagram 1**, User will be able to interact with the functionality on the homepage indicating if they are returning user or a new user. If the user is new to the application they'll will be directed to the sign up page where they can enter their details such as username, email address verification. Details will be captured and saved within the application's database. If a returning user or once signed up, the user will be directed to the map page. Within the map page, the user can choose to enter their location or request the application to locate their current location and also they can choose their destination. The user will then receive the optimal route to their destination as well as detailed info about the route from real-time information. The user will also have access to alternative routes. All this information will be fed from an oracle database and algorithm incorporated in the application.

In **UML Diagram 2**, it shows the users interaction with the various pages that will be included in the B-Ready application. If the end user is using the application for the first time they will be directed to the register page where they can insert the relevant details in order to get setup for the first time or if the end user is a returning user or once they have signed up they will be then being directed to the tutorial page where they can view the tutorial video on how to fully utilise the application. If the user decides to skip this page they will then be brought to the map page. Within the map page, a button will be displayed to that will direct the user to the index page within the application. From this button the end user will be able access other pages where they can manage their account, view their performance for the day, week or month, view posts and comments in real time from users around the area. Functionality within the pages will be redefined and prioritized within these pages during my requirement workshop for the second version of my prototype.

3.1.5 Requirements Workshop

The requirement and validation workshop session took place with two key stakeholders associated with the B-ready application which was a DHL driver and a Taxi driver. The workshop began with the participants exploring the pages within the first prototype. The stakeholders made comments about the changes in the navigation through pages that could made on the second prototype version of the B-Ready mobile application. The recommendations that stakeholders made was a change in the pages displayed at the start of the application. The DHL driver mentioned the user should be directed to the tutorial page after they've sign up for the first time to help them familiarise themselves with the uses of the application much faster as this was the purpose of a tutorial page. He felt a tutorial page was necessary at the beginning for the user and he recommended to have a video demonstrating on how utilise each feature and page in the application. On this page an agreement was made between all participants to have a button that would allow the end user to view a tutorial video on a particular page in the application in order for them to fully utilise each feature in the application.

The stakeholders were collectively satisfied with the layout of the other pages but recommended changes within what was displayed in each of the pages. Stakeholders suggested to add an additional page for the user to be view all the available pages within the application. The taxi driver requested to have a button within the map page that directs the user to an interface with all the available pages to the user in the application. The taxi driver thinks a link to share the application should be within this page. An agreement was made on the design and layout of this page which will be familiar to the iOS layout displaying all available pages with icons representing them.

The stakeholders requested a minor change should be made to the logo in each page. The B-Ready application logo should appear once and across the top of each page. Code should be embedding in the logo directing the user back to the map page. After concluding the navigation through pages and the documenting the suggestion about the logo, we began to discuss what should be displayed and laid out in each page. Suggestions were made from both participants requesting additional buttons for the user allowing them to pick their region and county as well as pick the language that will be displayed in the application. This can also be changed in the manage account page at any time for the user.

Many requests were made for the map page which they believe should hold the most functionality for the user. They first suggested the application must have a voice recognition platform incorporated into the application and should be available for use in this page. The user should have the option to either insert their destination/location into the text box or use the voice recognition feature. The taxi driver suggested a primary link in the map page which redirects the user to an external website such as accuweather or RTE weather. Both participant felt the user should get the chance to share a route after travelling or their favourite routes. Another requested was a button that displayed the nearest petrol station which could be included in additional info description or displayed on the map. The information may include nearest petrol station, real time travel alerts and weather condition in the area. A request for a favourites to be displayed by the DHL driver was made within the map page.

Both participants both liked the concept of a performance page and were satisfied with the layout within the page. The suggested a filter button that would allow the user to see their best performance time and date within their quickest journey during the day, week and month. One of

the stakeholders suggested the user should be able to connect with their Facebook friends or twitter followers in order for the application to generate a performance scoreboard with all the users of the application.

The DHL driver was satisfied with most of the content displayed in the scheduling page of the first prototype. To the contrary, the taxi driver believed minor changes and improvements could be made within the page. He suggested a button that allowed the user to schedule more than one scheduled journey within the application. He also suggested a button that would allow the user to view there scheduled journey and make changes to the time and date they had previously scheduled it for or delete the scheduled journey. He believed this could all be implemented and displayed behind the edit button or in a separate button. He finally requested functionality that would notify the user when the schedule journey time is approaching e.g. 10 minutes before the schedule time stated by the taxi driver.

We then moved on to view and analyse the community page in the first prototype page which comments and recommendations were made to the business analyst about various changes that could be made. The DHL driver first made a suggestion to allow the user to be able to synchronize the posts they can view on the page with other users of the application such as their friends or connected with on twitter or Facebook. They should be able to filter down what they can view within the page in terms of area, friends from Facebook, twitter or contacts. An improvement suggested by the DHL driver is the end user being able to like or reply to a comment respectively.

Both participants were relatively satisfied with the Favourites page in the first prototype version. Very little change was requested within this page rather than a modification of the way the user can manage their favourite routes such as delete a favourite route and a change in the display of the application. Overall both were really impressed with the inclusion of a favourites page.

The stakeholders mentioned a new feature which allows the user to choose the colour of the background they would like in the manage account page and also suggested an additional two buttons in the application that allow the user to change their county, region and language displayed in the application. A button should also be displayed on this page that directs the user to the available page's interface and also stated by the taxi driver is appearance of this button on a majority of the pages. We concluded the requirement workshop session by prioritising the elicit requirements in the levels of high, medium or low.

Requirements Gathered from Requirements Workshop

1. User should be directed to the tutorial page after they've sign up for the first time - **High**
2. User should be able to view a video demonstrating on how utilise each feature and page in the B-Ready application - **High**
3. Application should have a button that would allow the end user to view a tutorial video on a particular page in the application – **Medium**
4. Application should have an additional page for the user to be view all the available pages within the application – **High**
5. 'Available pages' should have a ios layout – **Medium**
6. Available pages should have icons representing them displayed on page - **Low**
7. The B-Ready application logo should appear once and across the top of each page - **High**
8. When clicked on, The B-Ready application should direct user back to the map page - **High**
9. User should be able to choose region/county on sign up page - **Medium**

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10. User should be able to choose language on sign up page. - **Medium**
11. Application should allow user to change region/county selected on manage account page – **Medium**
12. Application should allow user to change language selected on manage account page – **Medium**
13. Voice recognition should be available on map page – **High**
14. Map page should have a primary link to an external weather website – **High**
15. Map page should have a button to view the nearest petrol stations – **Medium**
16. Map page should have a favourites button – **High**
17. User should be able to share routes **- Medium**
18. Performance page should display filter button – **High**
19. Performance page should have scoreboard button to view scoreboard with Facebook friends or twitter followers – **Medium**
20. Schedule page should display an add button that allows the user to schedule more than one journey - **Medium**
21. Application should notify user about their scheduled journey - **High**
22. Community page should have a filter button – **Medium**
23. Application should allow user to like or comment on a post – **Medium**
24. User should be able to delete a favourite page – **Medium**
25. User should be able to change background on the application – **Medium**

3.1.5 Prototype

Version one

Home page   *Sign In Page*

Sign Up Page

Back   Get Ready!

Name

Email

Company

Password

Already have an account?

Register

Departure Address   Destination(s)

Mark My Location

Ready!
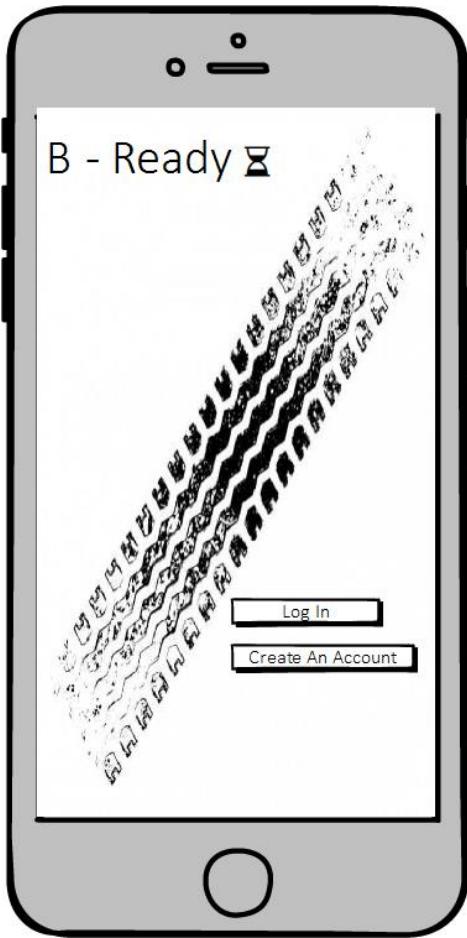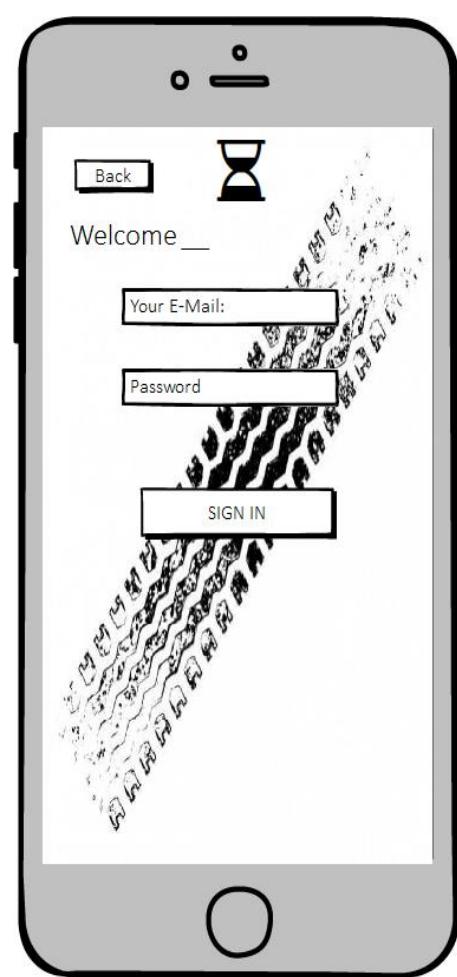
| Map | More |
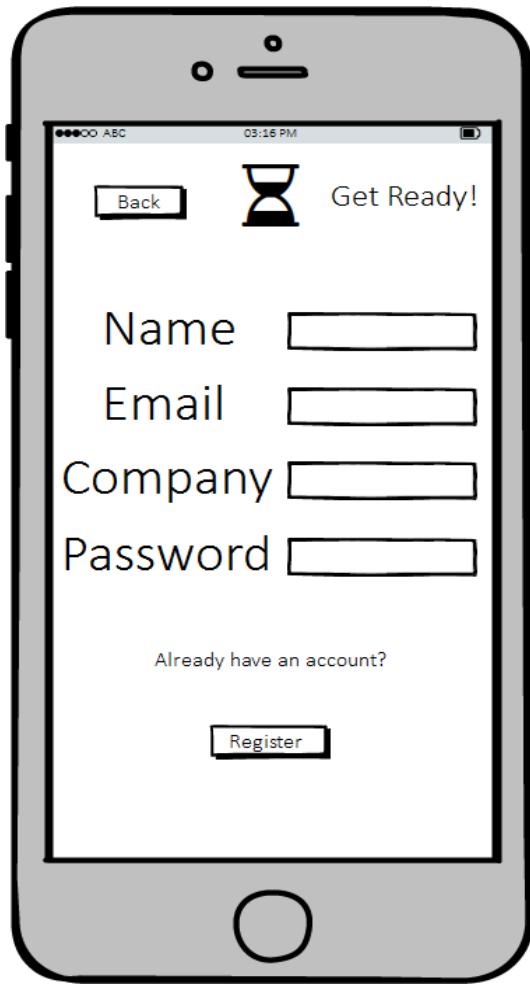
Map Page
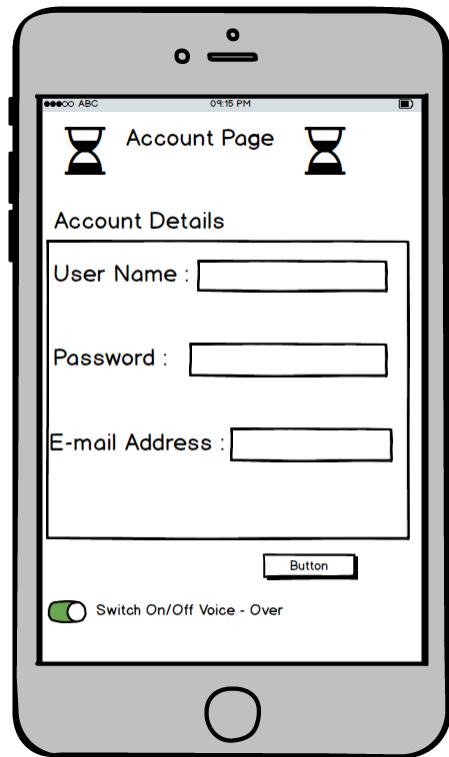
Manage Account Page

Community Page

Favourites Page

Performance Page

Performance Page

View Performance for the day		
View Performance for the week		
View Perforance for the month		

Button   Button

Favourites Page

Edit

☐ Route A to Route B

☐ Route A to Route B

☐ Route A to Route B

☐ Route A to Route B

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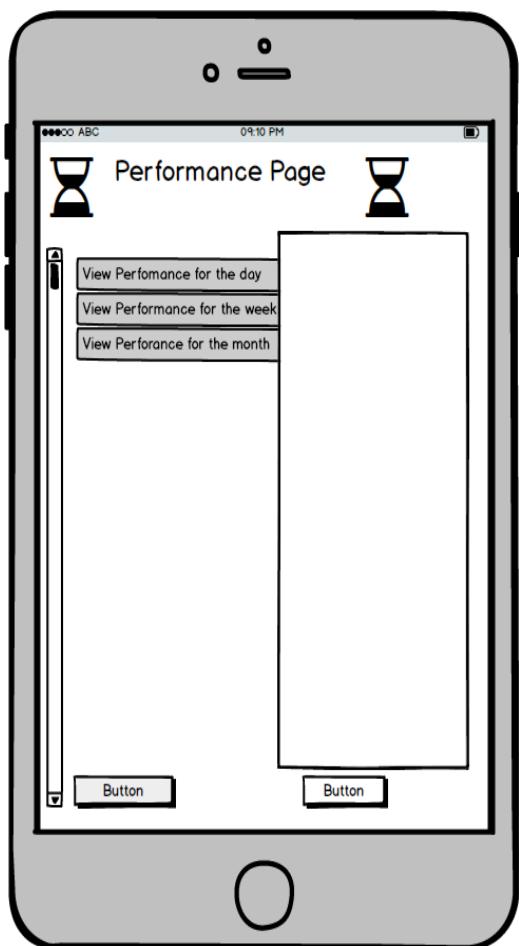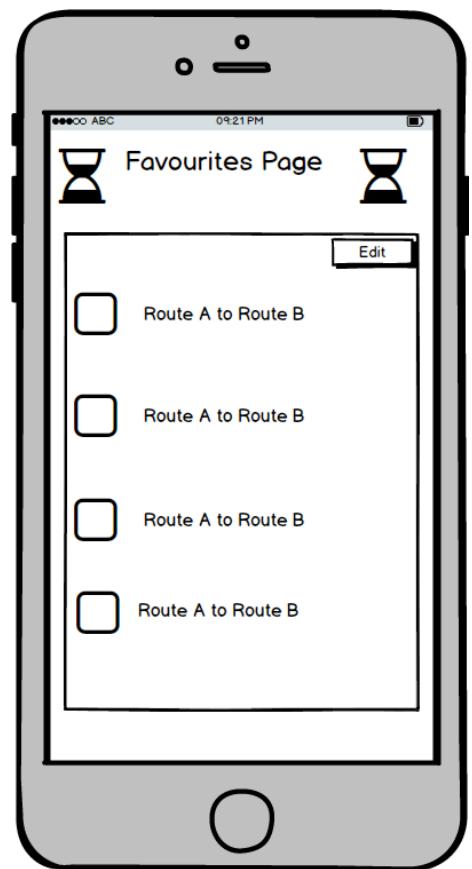
Tutorial Page
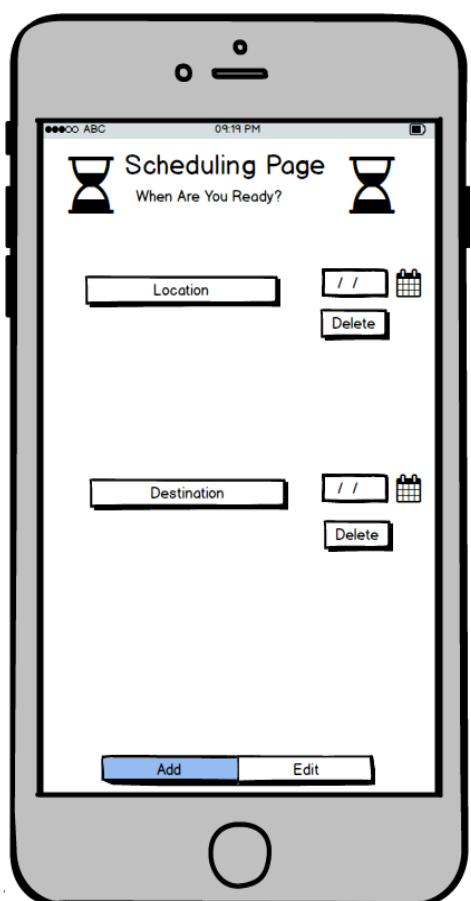
Scheduling Page

Prototype Version One Conclusion:

Prototype version was developed using the results of three of my elicitation techniques which consisted of survey, brainstorming session and the three interviews I conducted which took place with the relevant stakeholders. This prototype will be used as the topic of focus as part of requirements workshop where it will be analysed and critiqued by the stakeholders that are participating. After the completion of the requirement workshop, I expect to make various modifications based the participant's comments on the design and layout of the pages along with the features within the prototype to match stakeholder preferences.

After analysing the results of survey and interviews, I developed the page layout based on the preferences of stakeholders. Based on the results of my survey, a significant amount chose the option of including a voice-over feature, organisational feature and notification on upcoming traffic jams to be included on the B-Ready application. From the interviews I conducted, suggestions were made on the pages that I should include within my B-Ready application. These comments contributed towards the features and design layout being incorporated into the first prototype of the B-Ready application.

The first prototype contains 9 pages. These pages intend to complement each stakeholder's comments made in the interviews and their needs. For example, the tutorial page should reflect the use of the application and how to fully utilise the application. To the contrary, the scheduling page should satisfy the need of scheduling journeys with the pre – program feature implemented in this page. The performance page is a unique concept allowing the user to view the performance for the day, week and month for the users. With a lot of attraction in design and layout need to be done in the pages I hope to gather some useful suggestions during my requirement workshop.

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Version two:

Home Page/Sign in Page

Sign Up Page

Home Page/Sign in Page

Ready?

@username

password

Login With Facebook

Login With Twitter

B Ready!

Create An Account

Sign Up Page

Enter username

Enter e-mail address

Enter Password

(must contain both letters and numbers)

Choose Region/County

Choose Language

Ready!

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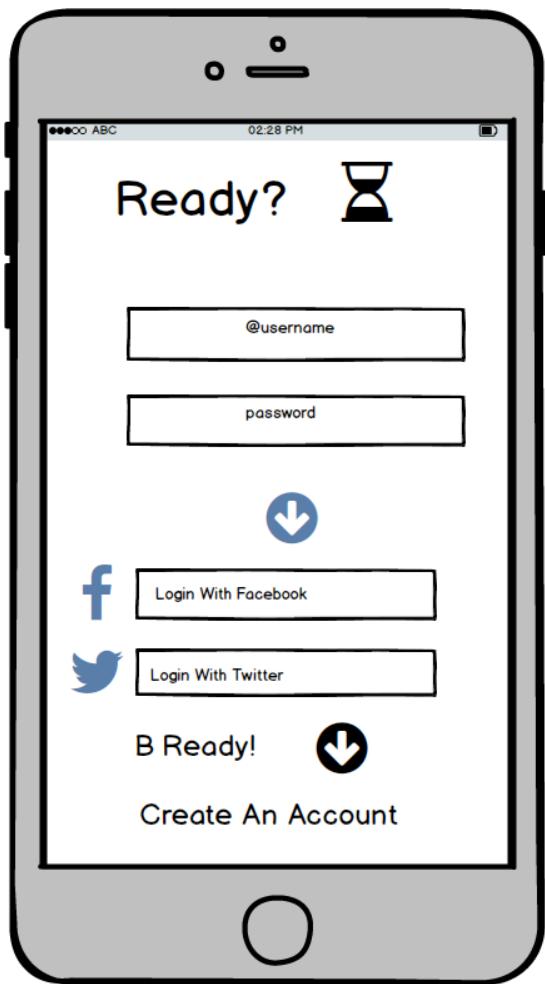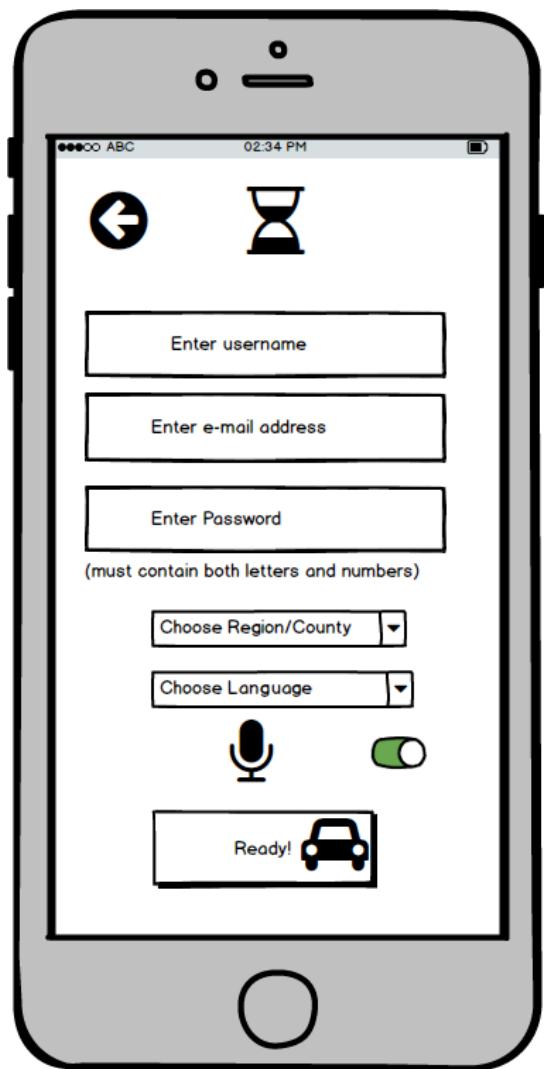
Available Pages Interface
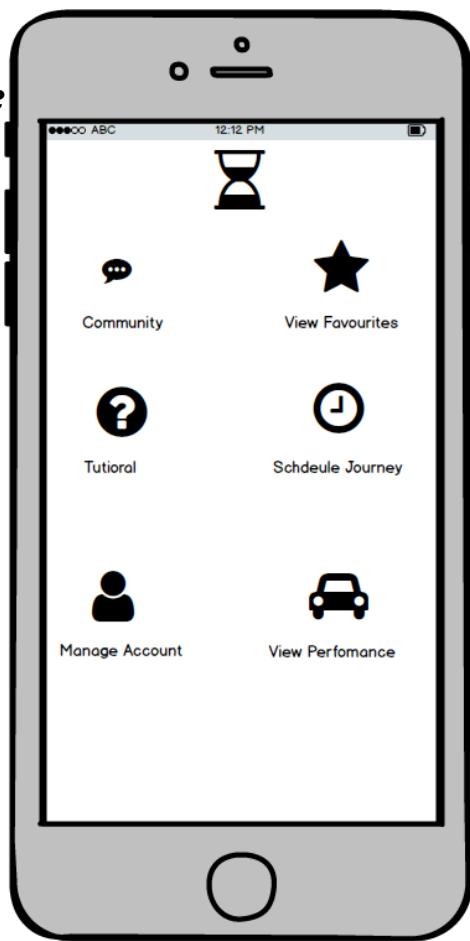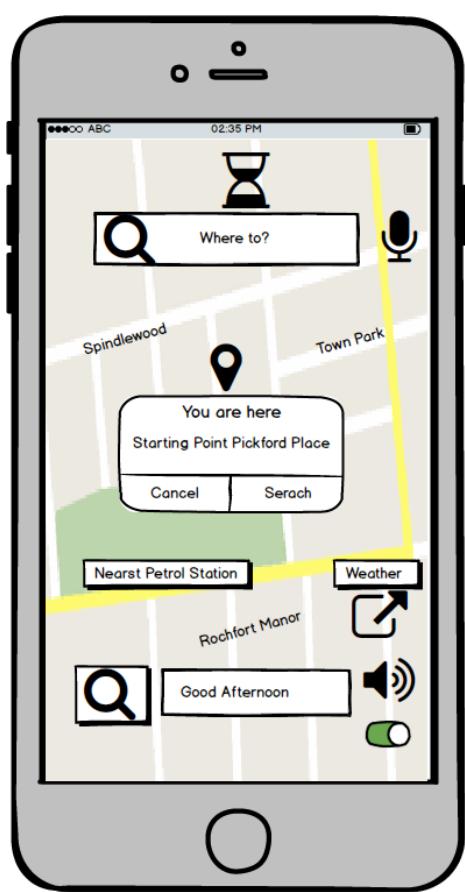
Map page

Community Page
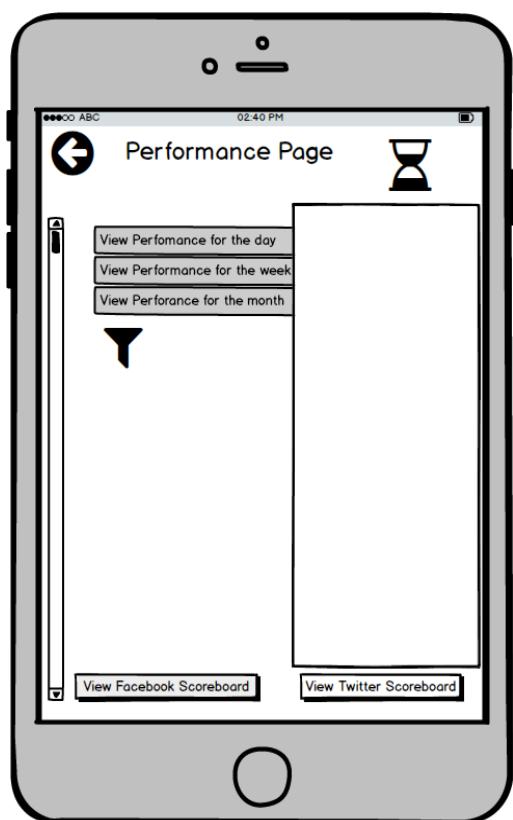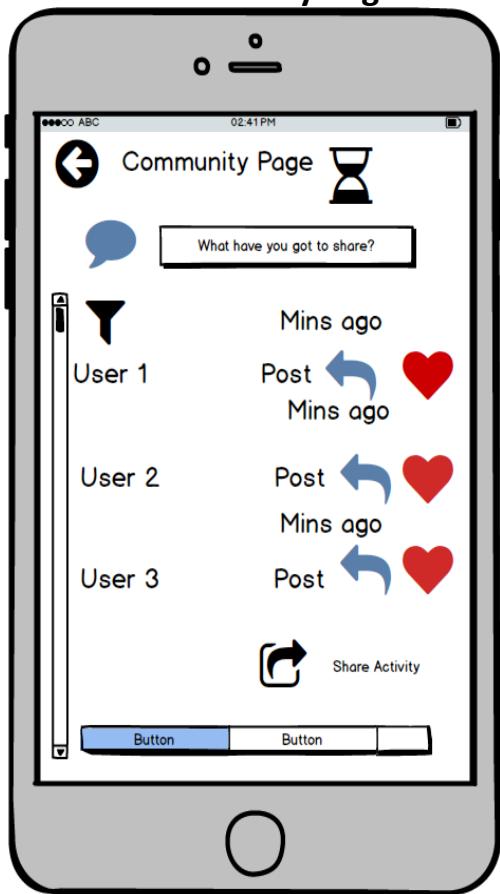
Performance Page

Scheduling Page

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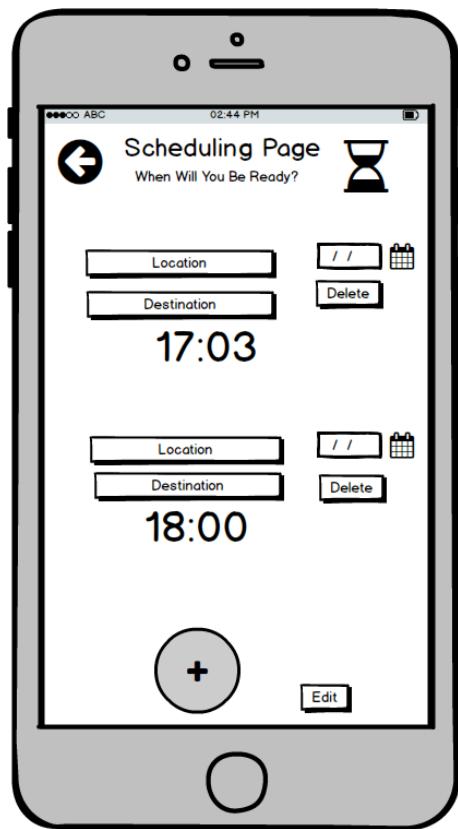
Favourites Page
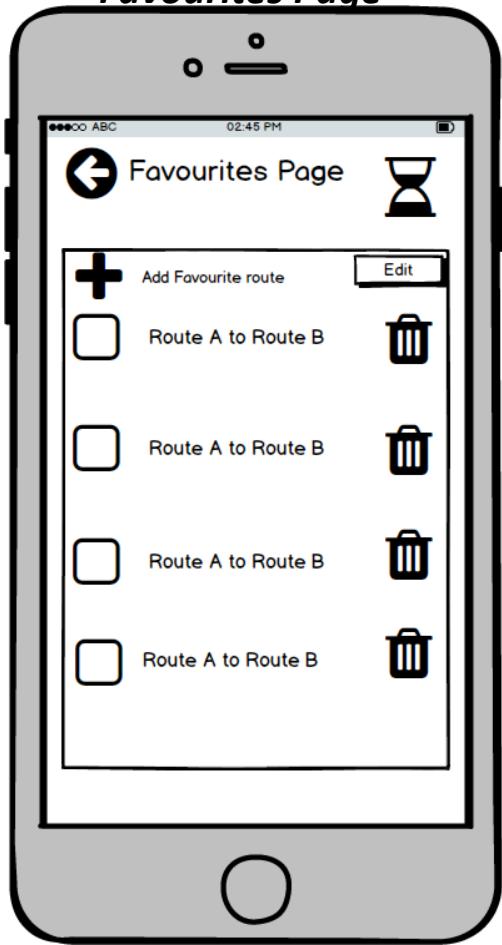
Tutorial Page

Manage Account Page

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Prototype Version Two Conclusion:

This prototype was developed after the requirements workshop that took place with two relevant stakeholders on the 30th of March. A number of alternations and modifications were suggested during the requirement workshop session. The home page will now be seen as sign in page which will allow the user to sign in with either their Facebook or Twitter and it will also display a 'create an account' button which will direct the user to the sign up page where it will allow them to create an account inserting the standard information such as a username and password. This page will now also capture the user's region/county and also the language the user wants displayed on the application.

A change in navigation has been made with the user been directed to the tutorial page after signing up for the first time. The tutorial page will still display a video which shows how to fully utilise the overall features of the application. The tutorial page will now also include a button that will allow the end user to view a tutorial on how to utilise a particular feature. This will allow the user to get a fully understanding of the feature. Also a new page was included in this prototype which displays all the available pages within the application. The user can be directed to this page by clicking on the magnifying glass displayed at the bottom left hand side on the map page

Various changes were made to the map page. The map page will now include a voice-over displayed on the right hand side of the page this will also include a weather link, to check the forecast in a local area. A big modification was made on the map page manly because predominantly it is the most important page in the application with the main functionality included in this page. A minor alternation was made to each page with the application logo appearing once on each page and this logo when clicked on at any time will direct you to the homepage. Changes in layout and display on the performance page was made with the inclusion of a filter button and the user being able to view a scoreboard in terms of performance with all their Facebook friends that use the application for friendly competition.

Other minor alterations were made to the second prototype with the stakeholders seemed satisfied going forward with the new design and layout of the B-Ready application. This is due to the positive feedback I received when I completed the construction of the second prototyping with the suggested modifications.

3.1.6 Document Analysis

 The research paper I reviewed that had a relation to the development of the B-Ready application was a published a journal around the **opportunities and challenges of smart mobile applications in transportation in December 2016 by Saidi Siuhi and Judith Mwakalonge.** My full focused within this research paper was the area of route planning and the benefits and opportunities of a route planning can bring to main areas such as reduction of cost and time. This paper I reviewed revealed opportunities around route planning which is highly related to my proposed idea Areas of traffic safety, fuel and travel information. According to the journal I reviewed, 'significant usage of smart mobile applications can be potentially very beneficial, particularly in automobile travel mode to reduce travel time, cost, and vehicle emissions'. Although saying this, the information stated in this research paper also related to transportation challenges that are displayed around various smart mobile applications. As smart mobile applications that currently available to the transportation industry provide certain opportunities to the user, they also pose significant challenges to transportation and enforcement agencies. One of the major challenges is essentially related to traffic law enforcement and unsafe driving behaviour. In relation to this to tackling this challenge, for the benefit of the user, I will incorporate into my B-Ready application which I feel is majorly necessary the presence of notifying the user about speeding cameras within a certain range while the user is on their journey. According to my findings in this research paper, some applications provide report information on accident, construction zones, road hazards, traffic jams. Based on this, my application will provide this information all in real time which will improve traffic safety and operational efficiency if the user is operating on the motorway. The benefit this will bring is reduction of excessive speeding. The researched opportunities are of paramount importance due to road users being distracted especially by electronic devices these days. Also the research paper highlights the rapid development of communication technologies. According to the research paper '**most of the existing smart mobile applications have not been fully evaluated for their accuracy in travel data collection'** (Said Siuhi and Judith Mwakalonge,2016). From this statement how I plan to make sure the travel data I collect is fully evaluated is by documenting the responses from interviews that were conducted with the project stakeholders on various questions regarding his daily travels and other relevant areas, evaluating charts generated from the outcome of replies from respondents that took part in the electronic survey to deduce useful information which in turn can be utilized for the many areas of the proposed idea such as design and implemented feature as well as conducting a requirements workshop with the point of conversation being around the development of features and visuals on the application prototype. Based on my findings of this review paper, an opportunity brought to me for my proposed application is a trusted ground truth such as a loop detector would be useful. A comparison of a loop detector to speed data collection from different mobile applications would be useful in assisting the developers of the B-Ready application to fine-tune their algorithms.

Another recommendation found based on my reading of this research paper is the input of road safety education and awareness programs within the terms and conditions of the application. This is vital because educating the public about the dangers of unsafe driving behaviours such as excessive speeding could have significant safety benefits to all road users. How I plan to implement this context into my application is by making my user complying and following the information with these road safety awareness programs when agreeing with the terms and conditions within the application. This review paper has assisted me in making this an important policy to prioritize as a

sort of intervention for crash reduction by setting out this strategy that will directly affect distracted road users who are subjected to smart mobile distractions.

An area brought to my attention within this research paper, is different smart mobiles are known to have different operating systems as of result this such differences could result in different accuracies for the B-Ready application. As of result of this, I plan to research and compare the accuracies of different smart mobiles and different guidelines for selecting smart mobiles operating system for this sort of transportation related application. This will be done alongside a developer after analysing and evaluating travel data collection and conducting interviews with the related project stakeholders. In addition to all of this, one of my main aims is assist travellers to make personal decisions on reducing time and cost as well as minimizing vehicle emission pollution.

Document Analysis Requirements Gathered:

1. Application should notify user about the presence of speed cameras while on their journey.
2. Application should provide user information on construction zones, road hazards, traffic jams all in real time of travelling.
3. Application developer should use loop detector to help fine tune algorithms
4. Application should comply user's agreement to road safety awareness programs by agreeing on the terms and conditions.

4. Total Requirements Gathered Analysis

1. Application should incorporate **RSA(Road Safety Authority)** consistent updates on street traffic lights. **(Brainstorm)**
2. Application should have a voice over feature (**Brainstorm, Interview 2)**
3. Application should have a live messaging system **(Survey)**
4. Application should have an organisational feature/pre-program for service drivers (**Brainstorm, Interview 2)**
5. Pre-program feature should calculate quickest route to reaching a maximum of 10 locations in efficient time **(Interview 2)**
6. User should be able to update status of the delivery e.g. green will signify 'delivered' **(Brainstorm)**
7. Application should have a performance tracker feature **(Brainstorm, Interview 1)**
8. Application will generate deliveries for the user based on company's customer's orders for the day **(Brainstorm)**
9. Application should have a live feed feature **(Brainstorm)**
10. User should be able to view delivery history **(Brainstorm)**
11. Application should have a feature that can record the customer's signature **(Brainstorm)**
12. B-Ready standard version should be free. **(Survey)**
13. B-Ready premium version should have additional features at a standard fee **(Survey)**
14. User should be able to share application with others **(Survey, Interview 2, Requirements Workshop)**
15. B-Ready application should be available on both Ios and Android platform **(Survey, Interview 1, Interview 2, Interview 3, Requirement Workshop)**
16. Application should have software updates for certain locations and address **(Interview 1)**
17. Application should include a route tracker **(Interview 1)**
18. Map page should have a visual representation of road blocks, traffic jams on possible routes that can be taking **(Interview 1)**
19. Map page should have a visual representation of all possible routes that the user can take to their intended destination **(Interview 1)**
20. User should be able to view the quickest journey they've taken during the day, week and month on the performance page **(Interview 1, Requirement Workshop)**
21. Application should generate a scoreboard from connected friends who use the B-Ready application **(Interview 1, Requirement Workshop)**
22. Application should be able to establish weather conditions for different locations. **(Interview 1)**
23. Application should include an optional button for notifications on weather conditions for different locations **(Interview 1)**
24. Applications should have responsive/dynamic page layout for user friendliness. **(Interview 1, Interview 2)**
25. Application should have a sign in page **(Interview 1)**
26. Application should allow user to sign in through their Facebook and Twitter **(Interview 1, Requirement Workshop)**
27. Application should allow user to register through their Facebook and Twitter **(Interview 1, Requirement Workshop)**
28. User's password should consist of both numbers and letter **(Interview 1)**

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29. User should be able to access application social media page through application **(Interview 1)**
30. User should able to save locations they have previously travelled to **(Interview 1, Requirement Workshop)**
31. Application should have an account page **(Interview 1, Requirement Workshop)**
32. Application should allow the user to manage details within accounts page **(Interview 1, Requirement Workshop)**
33. Application should have an about page **(Interview 1, Requirement Workshop)**
34. Application should have a favourites page **(Interview 1, Requirement Workshop)**
35. Application should allow users to manage their favourites routes e.g. delete routes from favourites list **(Interview 1, Requirement Workshop 1)**
36. Application should be able to locate the nearest petrol station and should be displayed on the map page **(Interview 1 Interview 2)**
37. Application should locate the nearest petrol station in terms of price **(Interview 2)**
38. Application should preview relevant information on the user's destination **(Interview 2, Requirements Workshop)**
39. Application should provide alternative routes **(Interview 2, Requirements Workshop)**
40. Application should provide a tutorial page **(Interview 2, Requirements Workshop)**
41. Application should have a tutorial video in the tutorial page **(Interview 2, Requirements Workshop)**
42. Application should allow users to watch a tutorial video on a particular feature **(Interview 2, Requirements Workshop)**
43. Voice-over feature should announce when to switch into the most convenient lane 5kmprior to arrival of lane **(Interview 2)**
44. Application should incorporate Google's maps for user familiarity and should be displayed within the map page **(Interview 2, Requirements Workshop)**
45. Application should have a community page **(Interview 2)**
46. Application should allow the user to search by county and date in the community page **(Interview 2, Requirements Workshop)**
47. Application should allow user to view and comment on other user's posts **(Interview 2, Requirements Workshop)**
48. Application should have a scheduling page **(Interview 2)**
49. Application should notify user the journey set within the scheduling page **(Interview 2, Requirements Workshop)**
50. Application needs to incorporate Computer vision and convolutional neural networks **(Interview 3)**
51. Computer vision and convolutional neural networks must be able to read satellite images from Google Earth or similar applications **(Interview 3)**
52. Application must be constantly updated **(Interview 3)**
53. Application should incorporate Google API's and log framework **(Interview 3)**
54. Voice Feature should feed data from a text to speech platform **(Interview 3)**
55. Correct models must be implemented **(Interview 3)**
56. Application should be developed with Phyton and C++ coding languages **(Interview 3)**
57. Application should be implemented for both Android and Ios platforms **(Interview 3)**
58. An entity should be incorporated to avoid the application crashing **(Interview 3)**
59. Application should notify the user when the current route there is no longer the fastest route **(Interview 3)**

60. Application should include a mini survey after user completes journey **(Interview 3)**
61. Admin should be able to access and manipulate user data **(Interview 3)**
62. Application should have many configurations done before use **(Interview 3)**
63. Application should have a mini survey/feedback after user completes journey **(Interview 3)**
64. Index page should have a iOS layout **(Requirements Workshop)**
65. Index pages should have icons representing them displayed on **(Requirements Workshop)**
66. The B-Ready application logo should appear once and across the top of each page and when clicked on direct user to the map page **(Requirements Workshop)**
67. User should be able to choose region/county on sign up page **(Requirements Workshop)**
68. User should be able to choose language on sign up page **(Requirements Workshop)**
69. Application should allow user to change region/county selected on manage account page **(Requirements Workshop)**
70. Application should allow user to change language selected on manage account page **(Requirements Workshop)**
71. Map page should have a primary link to an external weather website **(Requirements Workshop)**
72. Map page should have a favourites button **(Requirements Workshop)**
73. User should be able to share routes **(Requirements Workshop)**
74. User should be able to add, edit or delete a favourite route(s) on the favourites page **(Requirements Workshop)**
75. User should be able to change background on the application **(Requirements Workshop)**
76. Map page should have a button to view the nearest petrol stations **(Requirements Workshop)**
77. Admin should have full control of user's username and passwords. **(Interview 3)**
78. Colour and backgrounds chosen should be of a high resolution and brightness. **(Requirements Workshop)**
79. Administration login should be available **(Interview 3)**
80. Application should notify user about the presence of speed cameras while on their journey **(Document Analysis)**
81. Application should provide user information on construction zones, road hazards, traffic jams all in real time of travelling **(Document Analysis)**
82. Application developer should use loop detector to help fine tune algorithms **(Document Analysis)**
83. Application should comply user's agreement to road safety awareness programs by agreeing in the terms and conditions. **(Document Analysis)**

5.MoSCoW Prioritization Chart

Must Include	Should Include	Could Include	Wont Include (Out of scope)
Deliverable 2	Deliverable 1	Deliverable 6	Deliverable 3
Deliverable 4	Deliverable 4	Deliverable 8	Deliverable 8
Deliverable 5	Deliverable 7	Deliverable 17	Deliverable 9
Deliverable 12	Deliverable 16	Deliverable 19	Deliverable 10
Deliverable 13	Deliverable 20	Deliverable 24	Deliverable 11
Deliverable 14	Deliverable 21	Deliverable 27	Deliverable 13
Deliverable 15	Deliverable 23	Deliverable 39	Deliverable 17
Deliverable 18	Deliverable 26	Deliverable 43	Deliverable 33
Deliverable 22	Deliverable 29	Deliverable 59	
Deliverable 25	Deliverable 30	Deliverable 60	
Deliverable 28	Deliverable 34	Deliverable 62	
Deliverable 29	Deliverable 37	Deliverable 76	
Deliverable 31	Deliverable 42		
Deliverable 32	Deliverable 43		
Deliverable 33	Deliverable 46		
Deliverable 34	Deliverable 47		
Deliverable 36	Deliverable 49		
Deliverable 38	Deliverable 53		
Deliverable 40	Deliverable 58		
Deliverable 41	Deliverable 65		
Deliverable 44	Deliverable 71		
Deliverable 45	Deliverable 72		
Deliverable 48	Deliverable 73		
Deliverable 50	Deliverable 74		
Deliverable 51	Deliverable 75		
Deliverable 54	Deliverable 78		
Deliverable 55	Deliverable 80	C	
Deliverable 56	Deliverable 82		
Deliverable 57	S		W

Deliverable 61

Deliverable 64

Deliverable 66

Deliverable 67

Deliverable 68

Deliverable 69

Deliverable 70

Deliverable 77

Deliverable 83

M

B-READY

IEE Requirements Specification Document

6.IEE Requirements Specification

Name	Title	Version
Quam Jimoh	Student	

6.1 Introduction

6.1.1 Purpose

This IEE requirements specification document presented is being developed for the B-Ready mobile application. This report will clearly and precisely specify the key functional and non-functional requirements which is associated with the mobile application. This document must be gain approval from a main stakeholder prior to being passed on to the developer. Any proposed changes requested by the project stakeholders must be implemented prior to the B-Ready mobile being developed.

6.1.2 Scope

This mobile application is being developed for a variety of project stakeholders that are related to the mobile application. After my research and presentation of my idea to various stakeholders, they are now adamant a unique route planner mobile application is urgently required. Research shows and also techniques I conducted such as surveys, interviews etc and also according to various project stakeholders that many of the key features included in my proposed application are not provided in the current route planner applications they may be using. The mobile application aims to attract service drivers who want to travel to their detestation in efficient time whilst enhancing the satisfaction of other present features within the application giving the user a whole new dimension to other route planner application they may have used in the past.

Users will have the capabilities to travel to their destination in real time while also receiving real time travel information on route to the location. Various pages are available to the user such as a scheduling page which allows the user to schedule future journeys throughout their day, tutorial page for viewing a video on how to fully utilise the application and also certain features in the application, community page for viewing posts from users within the area the users intend to travel or another area of their choice and manage account page for altering their initial details at any time they wish. These are just some of the huge amount of benefits which shall be associated with the creation of this mobile application.

6.1.3 Definitions, Acronyms and Abbreviations

User: A stakeholder that thoroughly interacts with the B-Ready mobile application

Administrator: A stakeholder that may login and make particular changes to the B-Ready mobile application

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6.2 Functional Requirements

6.2.1 User Class – User

Sign in Page

6.2.1.1 Functional Requirement 1.1

Identification Code:

FR1

Title:

Facebook/Twitter sign in link

Description:

This link will be displayed in the sign in/home page which will allow the user to sign in through their social media accounts

Location:

Sign in/Home Page

Reasoning:

This aims to create a visual promotion which is in line with the application's branding and was requested by a stakeholder during the requirement workshop session.

Priority:

Must Have (High Priority)

Sign Up Page

6.2.1.2 Functional Requirement 1.2

Identification Code:

FR2

Title:

Language Selection

Description:

This selection box will be displayed on the sign up page when the user is signing up for the first time. This selection box will also be displayed in the manage account page.

Location:

Sign-Up Page/Manage Account Page

Reasoning:

 This was requested by one participant during the requirement workshop to allow the application to appear in different languages due to the reason many users may be multilingual speakers.

Priority:

Should Have (Medium Priority)

6.2.1.3 Functional Requirement 1.3

Identification Code:

FR3

Title:

Region/County Selection

Description:

This selection box will be displayed on the sign up page when the user is signing up for the first time. This selection box will also be displayed in the manage account page.

Location:

SignUp Page/Manage account Page

Reasoning:

This was requested by one of the participants during the requirement workshop session to allow the application to provide relevant such as weather in the region/county the user has chosen

Priority:

Should Have (Medium Priority)

6.2.1.4 Functional Requirement 1.4

Identification Code:

FR4

Title:

Terms and Conditions

Description: This will be displayed at the end of sign up page. User will be asked to tick the box as a agreement of complying with the road safety awareness programs. User can read in depth information on these programs by simply clicking on the text labelled 'terms and conditions'

Location:

Sign Up Page

Reasoning: This was gathered from a research paper I reviewed as part of document analysis. The aim of this by educating the user the dangers of unsafe driving behaviours such as excessive speeding and consequence the user may face by not obeying the traffic law enforcement

Priority:

Must Have (High Priority)

Map Page

6.2.1.5 Functional Requirement 1.5

Identification Code:

FR5

Description:

This is a button in relation to weather conditions in a particular area that will be displayed on the map page

Title:

Weather Notifications Button

Location:

Map Page

Reasoning:

This button is for optional notifications on weather conditions/updates in a particular area for the user.

Priority:

Should Have (Medium Priority)

6.2.1.6 Functional Requirement 1.6

Identification Code:

FR6

Title:

Save Routes

Description:

This option will be available after the user's journey

Location:

Map Page

Reasoning:

This aims to allow the user to use the saved route for future journey's without re-entering the same location/ destination

Priority:

Should Have (Medium Priority)

6.2.1.7 Functional Requirement 1.7

Identification Code:

FR7

Title:

Petrol Station Button

Description:

This button will be displayed on the map page

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Location:

 Map Page

Reasoning:

This aims to help locate the nearest petrol station to the user's current location in terms of price

Priority:

Must Have (High Priority)

6.2.1.8 Functional Requirement 1.8

Identification Code:

FR8

Title:

Weather external link

Description:

This link will be displayed in the map page bringing the user to external weather link. It will bring the user to an RTE weather page when it's clicked on by the user.

Location:

Map Page

Reasoning:

This will allow the user the to display the weather forecasts in more detail such as how the weather conditions will change throughout the day for an example. This will allow the user to accurately plan out their day while travelling in the local area and be more aware of the weather conditions for safety reasons.

Priority:

Should Have (Medium Priority)

6.2.1.9 Functional Requirement 1.9

Identification Code:

FR9

Title:

Favourites button

Description:

This will be displayed as a 'star' icon on the map page saving a route for the user's future use

Location:

Map Page

Reasoning:

During the requirement workshop session, one participants suggested to have this as transmitter for the application where the user can view the saved routes in the favourites page

Priority:

 Should Have (Medium Priority)

6.2.1.10 Functional Requirement 1.10

Identification Code:

FR10

Title:

Voice-Over Feature

Description:

This feature is fully utilised on the map page and can be switched off if the user wishes on both the map page and the manage account page.

Location:

Map Page

Reasoning:

This feature was requested by various project stakeholders in various elicitation technique such as brainstorming, interview 2. This is one key features for many reasons with safety and convenience among them.

Priority:

Must Have (High Priority)

6.2.1.11 Functional Requirement 1.11

Identification Code:

FR11

Title:

Road Block/Traffic Jams visual representation

Description:

This visual representation will be displayed on the map page during the user's journey on the route their taking

Location:

Map Page

Reasoning:

This feature was requested by various project stakeholders in one of my elicitation techniques which was during the first interview. This allows the user to visually see what is ahead on the route they may take.

Priority:

Should Have (Medium Priority)

6.2.1.12 Functional Requirement 1.12

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Identification Code:

FR12

Title:

Voice- Over Lane Announcement

Description: User has the benefit of the voice – over feature announcing the most convenient lane to switch into while on route to the destination**.**

Location:

Map Page

Reasoning:

This was suggested by a project stakeholder during an interview as he believed this would bring a major benefit in terms of safe and convenient driving.

Priority:

Should Have (Medium Priority)

6.2.1.13 Functional Requirement 1.13

Identification Code:

FR13

Title:

Travel Information

Description: The relevant travel information will be displayed on the map page relating to the journey the user intends on taking. This will also be shown during the user's journey. A dialog box will pop up informing the user on traffic jams, construction zones and road hazards ahead

Location:

Map Page

Reasoning: This was gathered from a research paper I reviewed as part of document analysis. This aims to keep the user aware of on-going events they should know about before their journey and change of sequence of events during their journey

Priority:

Should Have (High Priority)

6.2.1.14 Functional Requirement 1.14

Identification Code:

FR14

Title:

Speed Camera

Description:

This function will be available to the user while on a journey on the map page.

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Location:

Map Page

Reasoning: This was gathered from a research paper I reviewed as part of document analysis. This aims to keep the user aware of speed cameras in the certain range their travelling.

Priority:

Must Have (High Priority)

6.2.1.15 Functional Requirement 1.15

Identification Code:

FR15

Title:

Pre-Program Feature

Description:

This feature will be available in the map page and scheduling page allowing the user to schedule up to 10 journeys

Location:

Map Page/Scheduling Page

Reasoning:

This was requested by a project stakeholder during an interview session to allow the user to enter up 10 locations without re-entering a new destination that they intend to travel to

Priority:

Must Have (High Priority)

Index Page

6.2.1.16 Functional Requirement 1.16

Identification Code:

FR16

Title:

Share Application function

Description:

Application will allow users to share the B-Ready application with others on the index page

Location:

Index Page

Reasoning:

As requested by various project stakeholders, this link aims to attract more users to the application, identify a good impression of the application and for the current users to help others

Priority:

Must Have (High Priority**)**

6.2.1.17 *Functional Requirement 1.17*

Identification Code:

FR17

Title:

Account Page Link

Description:

This link is direct the user to manage their account and make changes to their username or password as well as other changes to their account if they wish. This is labelled 'manage account' with an icon above on the index page

Location:

Index Page

Reasoning:

The reason for this link is to give the user the chance to alter their initial details or configurations made within the application at any time.

Priority:

Must Have (High Priority)

6.2.1.18 *Functional Requirement 1.18*

Identification Code:

FR18

Title:

Favourites Page Link

Description:

This link is direct the user to the favourite page. This is labelled 'favourites' with an icon above on the index page

Location:

Index Page

Reasoning:

The reason for this link is to give the user the chance to manage their favourite routes. Certain activities that are available to the user within this page include adding a favourite route, deleting route(s) or sharing the route with other B-Ready application user.

Priority:

Must Have (High Priority)

6.2.1.19 Functional Requirement 1.19

Identification Code:

FR19

Title:

Favourites Page

Description:

This page can be accessed on the index page, labelled 'favourites' and when clicked on will display the content and functionalities within the favourites page.

Location:

Index Page

Reasoning:

This was suggested by various project stakeholders as this would bring a major benefit to users to view favourites and share these favourite routes with other B-Ready users.

Priority:

Should Have (Medium Priority)

6.2.1.20 Functional Requirement 1.20

Identification Code:

FR20

Title:

Scheduling Page Link

Description:

This link will be displayed on the index page of the mobile application and will bring the user to the scheduling page when it's clicked on by the user. This link will be displayed as text labelled 'schedule journey' with a timer icon placed above the text. This page will display options to manage journey's previously scheduled and delete scheduled journeys

Location:

Index Page

Reasoning: This link is to attract users to notify them on when they would like to make a journey at a particular time of their choice. This was suggested by a project stakeholder during an interview because he felt this sort of feature is not accessible on many route planner applications and also on the previous route planner applications he had used.

Priority:

Must Have (High Priority)

6.2.1.21 Functional Requirement 1.21

Identification Code:

FR21

Title:

Community Page Link

Description:

This button will be displayed on the index page, labelled 'community' with a messaging icon above.

Location:

Index Page

Reasoning:

This button was requested from a project stakeholder and aims to allow users to view the community page and access certain activities such as searching by county and date, with the filter button included in the page, on users comments in real time about certain sequence of events in a particular time

Priority:

Must Have (High Priority)

6.2.1.22 Functional Requirement 1.22

Identification Code:

FR22

Title:

Index Page Icons

Description: These icons will be displayed on the index page and when clicked by the user will bring them to respective page according to the icon they clicked on.

Location:

Index Page

Reasoning: The aim of the icons is to differentiate between the different pages, as stated by the project stakeholder who suggested during the requirement workshop he felt icons are more appealing to the eyes and will enhance the design of the index page

Priority:

Should Have (Medium Priority)

Performance Page

6.2.1.23 Functional Requirement 1.23

Identification Code:

FR23

Title:

Performance Page feature

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Description:

User will be able to view the quickest route they've taken during the day, week and month when the performance page is displayed. The filter along the side of the page will allow them to switch between viewing the quickest journey during the day, week or month.

Location:

Performance Page

Reasoning:

This feature was requested gathered by various stakeholders during the requirement workshop and also during an interview. This feature defines the whole purpose of the performance page as well as other benefits that can be displayed within the page.

Priority:

Should Have (Medium Priority)

6.2.1.24 Functional Requirement 1.24

Identification Code:

FR24

Title:

Performance Page feature (2)

Description:

User will be able to view a generated leader board from other B-Ready users that may be connected with through social media

Location:

Performance Page

Reasoning:

This feature was requested gathered by various stakeholders during the requirement workshop and also during an interview. This feature is allowing the user to view the productivity between themselves and other B-Ready application users and also to inspire friendly competition.

Priority:

Should Have (Medium Priority)

Favourites Page

6.2.1.25 Functional Requirement 1.25

Identification Code:

FR25

Title:

Favourites Page Feature

Description:

User should be able to add and delete their favourites page. This should be available in the favourites page.

Location:

Favourite Page

Reasoning:

This aims to allow the user to fully access and manage their favourite routes.

Priority:

Must Have (High Priority)

Community Page

6.2.1.26 Functional Requirement 1.26

Identification Code:

FR26

Title:

Share Routes Link

Description:

This function will be displayed in the community page and it will be under the labelled 'share route'. When the user clicks on this it will bring up a list of their favourites or they can enter a route manually.

Location:

Community Page

Reasoning:

This aims to allow other users access quick and efficient routes shared which was requested during an interview session with a project stakeholder who felt it would be very useful

Priority:

Should Have (Medium Priority)

6.2.1.27 Functional Requirement 1.27

Identification Code:

FR27

Title:

Community Page Feature

Description:

This feature should be available within the community page to the user. Users can view posts and comments all in real time from other B-Ready users within the county/region they have it set to. User can also make comments within this page other users posts

Location:

Community Page

Reasoning:

This feature was requested by a project stakeholder and gathered during the requirements workshop for a whole new dimension and awareness to the route planning for the user

Priority:

Should Have (Medium Priority)

Manage Account Page

6.2.1.28 Functional Requirement 1.28

Identification Code:

FR27

Title:

Social Media Link

Description:

This link will allow the user to access the mobile application social media page and will be displayed on the manage account page

Location:

Manage Account Page

Reasoning:

This link is aimed to keep the user up to date with the social media engagements and manage customer relationships.

Priority:

Must Have (High Priority)

6.2.1.3 Functional Requirement 1.3

Identification Code:

FR3

Title:

Region/County Selection

Description:

This selection box will be displayed on the sign up page when the user is signing up for the first time. This selection box will also be displayed in the manage account page.

Location:

Signup Page/Manage account Page

Reasoning:

This was requested by one of the participants during the requirement workshop session to allow the application to provide relevant such as weather in the region/county the user has chosen

Priority:

Should Have (Medium Priority)

6.2.1.2 Functional Requirement 1.2

Identification Code:

FR2

Title:

Language Selection

Description:

This selection box will be displayed on the sign up page when the user is signing up for the first time. This selection box will also be displayed in the manage account page.

Location:

Signup Page/Manage Account Page

Reasoning:

This was requested by one participant during the requirement workshop to allow the application to appear in different languages due to the reason many users may be multilingual speakers.

Priority:

Should Have (Medium Priority)

6.2.1.29 Functional Requirement 1.29

Identification Code:

FR29

Title:

Background Selection

Description:

This function will be available to access on the manage account page which will be labelled 'background'.

Location:

Manage Account Page

Reasoning:

This aims to allow the user to change the background visuals or background colour within the application at any stage by the user

Priority:

Should Have (Medium Priority)

Tutorial Page

6.2.1.30 Functional Requirement 1.30

Identification Code:

FR30

Title:

Other Tutorial Videos Link

Description:

This button will be first displayed on the opening tutorial page and also on the tutorial page that is available at any time on that can be accessed on the index page. This page is labelled 'Tutorial' with a 'question mark' icon. above allows the user to view tutorials on other features within the application.

Location:

Tutorial Page

Reasoning:

This allows the user to view tutorials on all features or particular features within the application to fully utilise the application.

Priority:

Must Have (High Priority)

Scheduling Page

6.2.1.15 Functional Requirement 1.15

Identification Code:

FR15

Title:

Pre-Program Feature

Description:

This feature will be available in the map page and scheduling page allowing the user to schedule up to 10 journeys

Location:

Map Page/Scheduling Page

Reasoning:

This was requested by a project stakeholder during an interview session to allow the user to enter up 10 locations without re-entering a new destination that they intend to travel to

Priority:

Must Have (High Priority)

6.2.1.31 Functional Requirement 1.31

Identification Code:

FR31

Title:

B-Ready logo link

Description:

This link will be displayed as the B-Ready logo at the top of each page on the mobile application. It should bring users to the map page of the application when it is clicked by a user

Location:

Every page on the B-Ready mobile application

Reasoning:

This link will allow the user to quickly move back to the map page when clicked on any of the pages on the B-Ready mobile application. This was requested by the one of the participants during the requirement workshop session

Priority:

 Must Have (High Priority)

6.2.2 User Class Two – Administrator

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6.2.2.1 Functional Requirement 2.1

Identification Code:

FR32

Event:

Administrator Login

Dependency:

An administrator may be required to login prior to making any updates on the mobile application. These updates may consist of changing user details or solving issues that user may be facing. Restrictions will be made for the admin to manipulate the information of the user's in unprofessional way.

Outcome:

After successfully logging into the application, the administrator is allowed to make specific changes to certain aspects of the B-Ready application if needs be. Restrictions will be set based on the administrator's login criteria.

6.3 Non-Functional Requirements

6.3.1 Security Requirement 2.1

Identification Code:

FR32

Title:

User Data

Event:

Administrator login

Rationale:

The user profiles that are kept cannot be modified by the B-Ready administrator. An external database must complement the name of the users of the B-Ready application. These profiles can only be customised with the user's permission by the mobile application administrator. The passwords are handled internally which effectively means that the length of password or special characters can be controlled by the B-Ready administrator. The profiles of the users will be backed up on a monthly basis by the application's operators.

Identification Code:

FR33

Title:

B-Ready Application download

Event:

User

Rationale:

The B-Ready application standard version should be free to download in the respective play stores that is available to the user. To download the application to the device, user must input 'B-Ready' text into the application store. Product Price and availability will be shown and the product price will be set to free.

Identification Code:

FR34

Title:

Password

Event:

User & Admin

Rationale:

The passwords of the users of the B-Ready must be lengthy and consist of both numbers and letters. These passwords can only be customised by the user of the mobile application and password length and the necessity for special characters may be modified at any time by the user. When the user fails to enter the correct password after five inputs, application will generate a temporary login password. The administrator's username and password is controlled by B-Ready but the user passwords cannot be controlled by B-Ready.

Identification Code:

FR35

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Title:

Application platform availability

Event:

User

Rationale:

The B-Ready application will be available and compatible for all ios and Android platforms. When searched in the application store. From processing options, the most up to date version will be available to the user, item detail and availability of the application.

6.3.2 Performance Requirement

Identification Code:

FR36

Title:

Street Traffic Lights (RSA) Road Safety Authority

Rationale:

When a user begins their journey the B—Ready application will read the RSA (Road Safety Authority) system updates on street traffic lights functions should be consistently updated. This database will be handled externally to ensure no inactivity.

Identification Code:

FR37

Event:

Administration login

Rationale:

The username and passwords of the administrators are controlled by B-Ready. The profile will show the level of control they have which is mainly associated with setting restrictions on applying updates to the application. Profile modifications or changes will not be made without the user permission. When permissions are being made for a user the subsequently make the final decision to either accept or reject the customisation of the user profile.

Identification Code:

FR38

Title:

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Voice Feature

Event:

User

Rationale:

The application should notify the user 5-10km prior to changing lanes while on their travel. This should happen while on their journey and announced by the voice recognition feature or/and shown on the destination the user is travelling to.

Identification Code:

FR39

Title:

Computer Vison and Convolutional Neural Networks

Rationale:

The computer vision and convolutional neural networks incorporated in the application must be able to read satellite images from Google Earth or similar applications to ensure the delivered optimal route to the user is correct in real-time of travel.

Identification Code:

FR40

Title:

Google API's

Rationale:

Google API's and log frameworks should be incorporated into the application which will allow communication with Google Services and their integration services. In this case, the API's of Google Maps from the provided Google Services should be embedded on to the application.

Identification Code:

FR41

Title:

Loop Detector

Rationale:

Loop detector should be incorporated into the application during the development stage. This will fine-tune algorithms used for B-Ready application by comparing the loop detector to speed data collection.

6.3.3 Availability Requirements

Identification Code:

FR42

Event:

Administrator login

Rationale:

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The administrator should be capable of logging into the B-Ready application to make alterations at any stage throughout the year. The administrator may modify user permissions when it deems it necessary. System maintenance may restrict the administrator at certain times to incorporate further modifications.

Identification Code:

FR42

Title:

Software Update

Rationale:

The application software updates will include additional locations and updates on certain addresses using a Google API's. Other software updates may fix bugs or they may be focused on fixing one or more security vulnerabilities. A feature update may be implemented in the feature including additional features.

6.3.4 Scalability Requirements

Identification Code:

FR43

Title:

Phyton and C++ coding languages

Rationale:

The B-Ready application should be developed with both Phyton and C++ coding languages. This will ensure a certain amount of flexibility in the event of new developers working on future needs such as additional future features. Client libraries with the appropriate languages, in this case Phyton and C++, should be used to allow developers to use Google APIs within the code.

Identification Code:

FR44

Title:

Models and Entities

Rationale:

B-Ready application should have the correct models and entities in place to ensure very low minimal downtime. These models and entities in place should increase availability in order to help reduce downtime to around 20-30 minutes a month.

6.3.5 Usability Requirements

Identification Code:

FR45

Title:

Dynamic/Responsive Layout

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Rationale:

B-Ready application should both have a dynamic serving and responsive application design. The reason these two technical solutions should be used together is there are two radically different technical solutions but neither is inherently superior to the other. Responsive application design is tailored to small screens which will be well suitable for the B-ready application and with the dynamic serving performance optimisation becomes extremely easy and efficient.

Identification Code:

FR46

Title:

Background Resolution Images

Rationale:

Application backgrounds and colours the B-Ready application available for selection should be of a high resolution and brightness.

Identification Code:

FR47

Title:

Geo Location

Rationale:

Geo-location servers for real-world geographic location of an object. This will assist in providing the user information regarding the distance and time left they have to travel.

Identification Code:

FR48

Title:

Index Page layout

Rationale:

The index page within the B-Ready application should have a similar layout to the iOS index page displayed on iOS platform devices.

Identification Code:

FR49

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Title:

Voice Over Feature

Rationale:

The B-Ready application voice over feature should feed data from a text to speech platform. A Google cloud-based text to speech API should be incorporated into the application having various languages all depending on the language selection by the user.

7. Conclusion/Lessons Learned

The lessons learned from B-Ready mobile application project are compiled from experience and progression throughout the project documentation. The purpose of documenting my lessons learned is for the use of future development on this project or similar projects to this in the future. This section may be used to as part of the next scope of this project idea in order to determine what problems occurred and how those problems can be handled and avoided in the future. Lessons learned were also gathered from both realized and unrealized risks as well through various techniques conducted throughout the project such as the surveys that distributed to the relevant stakeholders, interviews conducted and a conducted requirement workshop

 Lesson I learned in relation to the distribution of survey to the relevant respondents is the way questions were phrased in the distributed survey should've been closely evaluated in order to gather a maximum requirement from the respondents. The approach I took was more of justification of my mobile application among the target market I chose without closing in on gathering maximum amount of requirements.

In relation to project stakeholders, I learned that early and consistent communication is vital in order to fulfil expectations and desired features. This would effectively would have gather even more desired features and relevant data from the respondents that would've benefit the progression of my project going forward. A lengthier timeframe for completing my project would've been highly beneficial in allowing me to conduct follow up interviews to validate all requirements gathered. The issue around this was the timeframe I had and dates to work around to suit all parties involved to conduct these follow up interviews.

The lessons learned from this project are to be used as references for future projects and contain a large and adequate level of detail so that other project managers may have enough information on which to help base their project plans on the current scope.

 Lessons I learned in this document are also categorized by project knowledge area. These knowledge areas consist of scope change management and time management. Lessons I learned in the area of scope change management is the gathering, documenting and prioritising of requirements can led to a slight change in the initial scope and modifications of requirements could take place on the requirements gathered. Many additional requirements were documented alongside the initial list of gathered requirements. Overall the lesson I learned from this project knowledge area is the importance of defined scope. The scope statement should have four main purposes which is defines the work, sets a baseline and sets stakeholder expectations. Although saying all of this change is still inevitable and should always being invited even late in the development stage.

In the area of time management, I learned that project plan must be strictly followed for increased effectiveness and productivity. Unfortunately, due to other priorities in other modules such as continuous assessments and assignments I wasn't fully able to stay on top of initial completion date of deliverables which led to me giving a few days' slack on many project deliverables. Going forward for future projects I believe constructing a realistic plan around other possible priorities is important in order for the setting goals to reach and prioritizing for better overall performance.

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The engagement of stakeholders that are generally enthusiastic during their participation in various elicitation techniques is of a paramount importance during projects of stature and is one of the key lessons I learned during the development of my project. If I had the opportunity to re-do this project what I would do differently is going in with a firmer approach for the engagement of stakeholders from the automobile association and road safety authority. Unfortunately, I didn't get a response from the form of contact I approached the Director of Consumer Affairs, Mr Conor Faughnan. His involvement and engagement in elicitation techniques such as an interview and being a respondent in the B-Ready distributed survey, he would've been a great benefit to the development of gathered requirements and progression going forward.

8.How App Makes Money

In relation to revenue generation, from what I believe the best way to get the approval of my application to transportation companies in my target market is to show factors of cost savings in the business case to the consumers in the target market. Using this strategy will eventually deliver more in revenue with the beneficial idea of cost saving factors for the customer such as reduction on fuel emission by taking quicker routes and a function available letting them know the closet petrol station nearby. Another area of revenue generation for my application, is the instalment of banner ads. I will offer business owners in my target market the opportunity to place the company logo and adverts on the application's screen. Click based advertising is another revenue generation which will also allow the user to go directly to the sponsors website.

9.Evaluation of Techniques

Throughout the development of this document the most effective techniques I believed I used were brainstorm, interviews and requirements workshop. The reason being is these techniques allowed me to interact with the project stakeholders face-to-face which allowed them to express ideas, voice opinions on the further development of the requirements and on other stakeholder ideas which could further improve that particular requirement. The benefit of this was generation of ideas were gathered for further progression from other participants. Another benefit from these techniques was co-location which made the communication with participants involved more successful

The interviews conducted gathered a total of 64 requirements which were carried out with three project stakeholders which were two service drivers and a software developer.

For future development, the I would us all 7 elicitation techniques again as they allow to directly interact with the stakeholder to elicit a large variety of requirements. Techniques that gave the user a visually representation of the proposed idea such as an **interface analysis** and prototype were very important to allow the stakeholders to visually see how they can interact with the application and the display of features they desired in each page.

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11.Appendix

11.1Project Proposal

11.1.1 Project Objectives

My primarily objective is to complete formulate a detailed requirements specification document for a new app that will help service drivers deliver their service by taking the quickest(optimal) route using real time information. The main aim of the overall project involves gathering requirements for the development of application around my initiative from the main stakeholders associated with the project such as service drivers, software developers and Automobile Association (AA) and any other related stakeholders. Aspects that I will cover will be the application design, navigation through pages, desired features proposed from stakeholder that can be potentially implemented in the application, page content and a number of other aspects identified during the requirement elicitation stage of the project. After gathering all the project requirements, I will then document the gathered results and relevant information in a highly detailed requirements specification document. Along the development of the report, I plan to undertake many other tasks that must be fulfilled throughout the project. These tasks include, developing a project proposal, conducting analysis for the project design, performing the mid-point presentation, submitting the final document, conducting the final presentation and lastly displaying the finished project application. This will all lead to a project showcase.

The main objective of this app is to provide the user with an optimal route in reaching their destination(s) using real time information in efficient time. This will help service drivers avoid certain delays for example entering traffic congestion and construction zones. With gathered requirements from my stakeholder as I go conduct my intended elicitation techniques many more features will be identified along the way.

 A secondary objective will be to make it appealing to service drivers. I plan to do this by creating a strong visual interface and stakeholders influenced making it user friendly as well as taking the results of my results of my requirements techniques to show the creation. The app will emphasize the advantages of taking the quickest route by service drivers to deliver their service as quick as possible. For a positive impression, satisfying and continuously communicating with my stakeholders is essential in order to develop the application in a strong way as it will encourage the main user to use it for their own convenience.

As the project progress through various stages, I will keep a set schedule that will outlined in detail within the project plan. I will delegate my time carefully throughout the year so it will not have major impact on completing various assignments in other modules. I plan to achieve this by setting myself a basic objective to complete all deliverables on time and to a high standard throughout the project. This will make sure submissions deadlines are met. Overall, I will see the project as an outright success if I can exceed expectations of the stakeholders who are associated with the development of the application. This can be done by managing and conducting the vital requirements.

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11.1.2 Background

The **motivation of this project** came about from a belief of a real need for service drivers today and bringing a completely new dimension of route planning. Another reason for the motivation of this project is from a conversation had with a service driver on his frequent experience with being unfamiliar with the area of where I lived. From my research before going ahead with this project, I concluded that there is no real effective application that will help them plan in terms of taking the optimal route in order to reach their destinations in efficient time. Due to this, other problems arise. Service drivers face an increase cost of fuel from spending unnecessary time trying locating his/her destination for parcel drop off. From my research, one of the main problems route planner applications fail to provide is giving an optimal route rather than just providing any route. The reason for this I feel may be that its possibly seen as something with no major importance or something they have failed to utilize.

After identifying the current issues and associated them, I plan to have possible solutions and benefits within my application idea constructed and development in the appropriate way with desired features from my stakeholders. I believe my application will prove to be a massive advantage in providing good service by really emphasizing on providing quick route(s) for efficient drop off or what the service provided may be. This will be a huge benefit over other applications currently out there, because they have failed to see the importance of this main functionality which overall will give me a competitive advantage over my competitors. The best ways of rectifying the issues is by developing a unique app that solve this major problem. Delivery drivers face different problems everyday but the main problem they face is getting to their destination by taking the optimal route. I plan to solve and overcome problems such as delivery drivers spending more time in an unfamiliar area to pick and drop a variety of items through the conduction of elicitation technique and desired features from my stakeholders that can be used around this. Attracting delivery drivers to using the application but will hugely benefit them because of the problem that the application solves. Therefore, I will be collecting and documenting requirements that will be associated with the app throughout the progression the development of the application.

11.1.3 Technical Approach

Once the concept of my final year project has been finalised, I will then begin researching various tools that I can use that will build an efficient requirements based application for development and the project showcase. I will conduct extensive research and have discussions with my project supervisor on deciding which tool will apply best to me. Possible tools I may use include WordPress, NetBeans or WIX website builder. I have experience in using NetBeans but the other options may need research on how to use them and also may provide opportunities to add relevant features, which are relevant to my project. I will conclude this from my extensive research.

In order to build my project app effectively, I will go through various stages that involve Requirement Collection & Documentation, Prototype Development for a visual of Project Application development and Final Project Website.

Requirements Collection & Documentation will involve conducting interviews and distributing surveys to my stakeholders who are associated with the B-Ready application. The discussion will involve topics such as required and proposed features with all of the gathered requirements being documented in a highly detailed report. There may be a possibility of a high level of framework developed at this stage of the project.

Prototype Development will involve creating an application prototype which be included as part of midpoint presentation showing the first version out of a planned three versions. This will depend if the low fidelity (first version) is completed by then. If not, I plan to show screenshots of the progress of the various pages included in my application. Once the high fidelity (second version) is completed, an elevation will be had with project stakeholders and project supervisor. This will be done to see if my client wants to request any changes to be made. These changes will be implemented prior to final version being submitted going forward.

The development of the application involves not only using but also the requirements gathered from various stakeholders during the project Content will be added, along with carrying out continuous testing at this stage, I hope to be very satisfied when I have completed the development of my application and ready for it be displayed at the project showcase. I aim the project showcase to reflect the amount of work that I have completed throughout the project.

The post creation of the project application will involve reviewing the finished project website with my supervisor and also will involve reviewing the finalised prototype with my stakeholders, and

subsequently making changes prior for preparation for the showcase. When both myself and project supervisor are totally satisfied the application will be published.

11.1.4 Stakeholder *List*

1. Service Drivers
2. Road Safety Authority (RSA)
3. Dublin City Council
4. (AA) Automobile Association
5. Project Sponsor
6. Project Manager
7. Client
8. Software Developer

11.1.5 Special Resources Required

I plan to use balsimq to construct the interface of my application and WordPress to create an project website version of my application that will be displayed during the showcase. Once I have decided which tool to go with I will need to enhance my skills with the resource I go with. I also need to

1. Watch tutorials on how to use the tool
2. View websites previously constructed by the tool
3. Watch tutorials on other websites such as YouTube on how to incorporate several of features.

Other resources include

- External drive e.g. Dropbox
- Laptop
- Microsoft Word

11.1.6 Project Plan

Tasks	Start Date	Finish Date	DURATION DAYS
Brainstorm List of Project ideas	15/09/2017	22/09/2017	7
Conducted Project Concept Research of project ideas e.g. possible stakeholders, target market, existing ideas)	22/09/2017	29/09/2017	7
Preparation for delivering Project Pitch	28/09/2017	30/09/2017	2
Pitched Project Idea for Approval. (Deliverable 1)	03/10/2017	03/10/2017	0
Continue furthered research for amended pitch project ideas	05/10/2017	27/10/2017	22
Develop Project Proposal Document	13/10/2017	26/10/2017	13
Create Project Proposal Document	13/10/2017	25/10/2017	12
Review Document Quality	26/10/2017	27/10/2017	1
Submit Project Proposal (Deliverable 2)	27/10/2017	27/10/2017	0
Identify Requirement Elicitation Techniques used	05/11/2017	08/11/2017	3
Conduct Brainstorming session	22/11/2017	22/11/2017	0
Document results and requirements gathered from Brainstorming session	08/11/2017	23/11/2017	15
Develop Preliminary Requirement Specification	08/11/2017	23/11/2017	15
Review Document Quality	23/11/2017	24/11/2017	1
Submit Preliminary Requirement Spec Document (Deliverable 3)	30/11/2017	03/12/2017	3
Develop low fidelity prototype	30/11/2017	03/12/2017	3

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Prepare for midpoint Presentation.	02/12/2017	03/12/2017	1
Perform Midpoint Presentation	04/12/2017	04/12/2017	0
Conduct interviews with relevant stakeholders	16/03/2018	31/03/2018	15
Send Survey to respondents	12/02/2018	08/03/2018	24
Review results and requirements gathered from survey and interviews with supervisor	12-Mar	16/03/2018	4
Document results and requirements gathered from interview	18/03/2018	20/04/2018	33
Analyse, document results and requirements gathered from distributed surveys	20/03/2018	22/03/2018	2
Acquire stakeholders for Requirements Workshop session	20/03/2018	25/03/2018	5
Conduct Requirements Workshop Session	30/03/2018	30/03/2018	0
Document results and requirements gathered from Requirements Workshop session	01/04/2018	03/04/2018	2
Make requested changes to Prototype version 1	05/04/2018	07/04/2018	2
Develop Prototype Version 2	08/04/2018	08/04/2018	0
Adding Content & Features to Prototype Version 2	08/04/2018	11/04/2018	3
Create UML Diagram	05/04/2018	13/04/2018	8
Document Interface Analysis	13/04/2018	17/04/2018	4
Review document progress with supervisor	20/04/2018	20/04/2018	0
Document Total Requirements Gathered Analysis	28/04/2018	28/04/2018	0
Document and Prioritise Total Requirements Gathered using MSCW	28/04/2018	29/04/2018	1
Create and Develop IEEE Requirements Specification.	30/04/2018	04/05/2018	4
Create Showcase Poster	28/04/2018	03/05/2018	5
Create Project Website using WordPress	05/05/2018	10/05/2018	5
Final Document Submission	11/05/2018	11/05/2018	0

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Prepare for Final Presentation	23/05/2018	unknown
Complete Project Showcase	30/05/2018	30/05/2018

11.1.7 Evaluation

I will be using a variety of requirements elicitation techniques as the basis of my final requirement specification document. The techniques that will be included requirements specification brainstorming sessions, interviews, prototype, survey, interface analysis, document analysis and a requirement workshop. I am using these main techniques but also other document analysis and evaluation criteria. Implementation these techniques will allow me to develop a highly detailed and functional requirement specification. After the midpoint presentation, information will consistently be added. Interviews and meetings with the project stakeholders will happen on various occasions throughout the development of my project. The reason for meeting the project stakeholder on a regular basis will minimise the chances of missing on important requirements that can make an improvement to my final document. Once the final prototype version is completed, I will plan to meet with my supervisor to evaluate the application content, features and pages displayed within the prototype and discuss whether improvements can be made prior to the final submission. We also evaluate the project website to make sure both myself and my project supervisor are entirely satisfied.

11.2 Reflective Journals

11.2.1 September

I returned back to college on September 18th for my final year specialising in business analysis. I brainstormed my idea based on my interests. Coming up with an idea wasn't easy. I have an interest in sports, fashion and shopping online. My ideas were based with these interests. The concept I decided to go with was a real life need regarding deliveries. The concept I used to develop is app specification.

11.2.2 October

During October I was assigned my supervisor who was Dermot Killen. The main deliverables of the project were planned out along with resolving issues with my project. We then decided on the next date to have a meeting which was two weeks in advance.

I mainly worked on my project proposal during the month of October which was due on the 27th. I used the template available to me. I worked on each heading throughout the month which were background, my objectives throughout the project, my technical approaches and background research on my competitors on gaps.

The primarily objective in November is to begin the first draft of requirements specification. I plan to set out how I will conduct some of my elicitation techniques I intend to do such interviews, surveys etc.

11.2.3 November

My second and third supervisor meeting took place during the month of November. In the first meeting we went through the feedback he gave for my project proposal by outlining the changes I should made and clarifying what we were both not sure about. This meeting took place on the 9th of November. We also went through the next deliverable which was on 24th of November. We also had a meeting on the 23rd of a November to review my requirements specification document. We also reviewed my survey and interview questions and made an appropriate change where needed. The preliminary requirements techniques and the preliminary requirements analysis. A workshop was had with Eugene O'Loughlin outlining the requirements that is needed for the mid – point presentation which will take place from the 4th December. This deliverable contains a business need, business case, stakeholder list, interview questions, survey questions and a brainstorming conducted. I went into specific details relating to these techniques such as the participants, location, timing, objective and rules had to be clearly outlined in the requirement specification document. Overall November was a productive month for the progress of the final project. I was able to establish the techniques I will be utilising and prepared well for these sessions.

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I plan to meet up with my supervisor after submitting my requirements specification document on the 24th of November to discuss the mid – point presentation. This meeting will involve me going over what has to be presented for the mid – point presentation and how to present it.

Date of Supervisor meetings: 9th November 2017

23rd November 2017

I completed my midpoint presentation on December 4th at 3pm with my supervisor and 2nd examiner Mr Ron Elliot present in the room. The overall feedback I was given was the progress I've made up to this point has been good but I most differentiate the associated stakeholders to my project a lot better. This was some useful feedback and an area I most defiantly will be looking into improving in the future.

Going forward with my project, after completing my exams on the 12th of January, I will begin distributing my surveys and conducting interviews with the relevant stakeholders. These responses will then be analysed before documenting. After initial responses from the relevant stakeholders to my project, I look into starting my other techniques that I intend to use which are interface analysis and document analysis.

11.2.4 December

I certainly felt less productive towards my project in the ending of December and early January due to my semester one exams. After all my college exams finished, I solely focused on the final year project itself. I plan to continue to follow my project plan by distributing the surveys and conducting interviews with the relevant stakeholders to my project. I will also continue to work on my elicitation techniques that I plan to do. To the contrary, the elicitation results section of my project needs to be extensively covered in February to show significant progress in my project. When I return back to college on the 22nd, I plan to setup a meeting with my supervisor to discuss the proceedings of my project.

During the month of February, I will be working on numerous tasks. All the elicitation results will be gathered and documented, which is my primary objective for the month. The only potential barrier I face in February relate to assignments for my other modules. On the positive side, I only have two modules instead of five modules during semester two, which is a substantial improvement from semester one which means a lot more focus and time can be put into the project.

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11.2.5 January

During the start of January, I was fully focus on the completing 5 exams towards my final year grade. These exams ended on the 12th of January which allowed me to turn my full attention back on to my final year project. With my survey questions fully approved before the Christmas break, I scheduled a meeting with my supervisor to discuss the next stage of project and what's required. During this meeting I also request approval from my interview questions which was successful. We also discussed how much responses I have targeted to get overall from my survey which is 100 responses and potential people who I can interview and also who I intend to interview.

Towards the end of this month my result gathering was in full flow, with 20 responses and one interview conducted with a taxi driver from Carlow. I intend to conduct another 2 or 3 in February and reach my target of 100 responses from survey during this month also.

11.2.6 February

During the month of February, I brought my survey responses to total of 60. I brought this to my supervisor's attention who I met on the 2nd of March. He suggested I should send my survey's out via email to my target market companies. This was done in hope of an increase in responses. I hope of a certain increase of 20 to 30 more responses during the month of March.

I conducted my second interview with a postman driver from Carlow. An informative interview was conducted that help me consider many things from a user's perspective that could really help me improve my application. Going forward, in early March I plan to conduct my final interview with a software developer in order to gather information from a development angle towards my proposed mobile application.

11.2.7 March

During the month of March, I conducted my second last technique which was my requirements workshop. This took place on the 30th of March with two participants present at the workshop. The workshop was highly effective in sense of further developing my prototype for the visuals of second version. Various changes were made and new requirements were gathered from the participants. I also extremely busy with completing two assignments in two other modules which were business process management and agile project management. Also on top of this I had to start studying for my final year exams that was taking place from the 25th of April. During the Easter break, to make major progress on my final year project was a main priority for me. With the plan I had set out, I was able to finalise the second version of my prototype through the gathered requirements from the

requirements workshop that took place for my B-Ready route planner application. I proofread all of the work that I have completed on the project to the date. During the Easter break I also performed and completed my interface analysis which consisted of creating a highly detailed UML user case diagram.

On the 5th of April, I met with my supervisor and presented him the work I had completed up to date. We evaluated the techniques that I have completed to date on the project and I also received from positive feedback on my progress so far. My project supervisor requested some changes in my prototype and little amendments with my headings within my done so far. After my final year college exams are completed, I will start working on the final piece of my project which will consist of creating a poster, project website using WordPress and a section of a highly detailed IEEE requirements specification

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11.3 Validations

11.3.1 Interview Brief

B-READY

Student name : Quam Jimoh

IEE Requirements Specification
Document

Application Name: B-Ready

Interviewer:

Interviewee:

Interview Objective: The objective of this interview with the software developer is to gather some functional and non-functional requirement, ideas on the design and layout of the app and possible risks that might be faced.

Application Overview

B-Ready is a route planner application provides an optimal route for service drivers by using real time information at the particular time they intend to travel. The main objective of this app is to provide the user with an optimal route in reaching their destination(s) in efficient time. This will help delivery drivers avoid certain delays for example entering traffic congestion. A secondary objective will be to make it appealing to delivery drivers. I plan to do this by creating a strong visual interface and constantly communicating with the stakeholders related to this application to make it user friendly.

Initial proposed features to be implemented

1. Voice Over Feature.
2. Performance page
3. Notification for upcoming traffic events
4. Possible Delivery history feature
5. Map page used to locate quickest route nearest to user at particular time of travel.

Sign__xxxxxxxxx_____ (SIGNED BUT IDENITIY TO NOT BE DISPLAYED IN DOCUMENTATION TO BE SUBMITTED)

DATE:

11.3.2 Email Validations

Hi,

These requirements all look satisfactory.

Kind regards,

Hi Tobi I have reviewed the document requirements from our interview that took place on the 4th of March 2018 and I am happy to approve these requirements that we're gathered from our interview session.

Kind Regards,

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11.4. Showcase Poster

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11.5 Project Website

Website Link: http://breadyrouteplanner.com/
(Home Page)

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(About Page)

Developed an IEEE requirement specification for a mobile application using information obtained from a number of conducted elicitation techniques such as surveys, interviews, brainstorming session, prototype and a requirements workshop session

B-Ready is a route planner application that provides an optimal route for service drivers by using real time information at the particular time they intend to travel.

It gives service drivers a whole dimension to route planning with various features/page included in the application such as a performance feature, schedule journeys, connect with the community around you on your daily travels and many more.

(Techniques Used Page)

A Total of 7 Elicitation Requirement Techniques were conducted which were the following :

Brainstorming session

This was conducted with two relevant stakeholders associated with the development of the B-Ready route application and the main objective was to elicit ideas from the stakeholders involved that could potentially be incorporated into the B-Ready route planner application. An agenda was followed to generate useful ideas during the session.

Survey

The Survey was distributed to the target market of the application gather relevant response for the development of the application. The objective of the survey was to identify the demand level of the main functionality of the application as well as certain features that could be incorporated into the application. The secondary objective of the survey was to gather viewpoints and opinion's on possible features within the application and their overall interest of the application idea.

Survey Questions included
: https://docs.google.com/forms/d/e/1FAIpQLSe5Tnu0KSJuqqHYHUftm9-

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(Techniques Used Page) cont.

(Results Page)

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(Contacts Page)

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11.6 Interview Notes

Performance page
Logo
Filter by day, week and month
Scoreboard

Map page
Pre-program Feature Display
(pre-program page) (feature stations nearby)
(speech function in second page)
(Community page (second
View users, from twitter page, facebook and in area
(share button) second version.
Scheduling page
(add, delete, change second version)

Location → destination

Time of notification

Travel alerts for today

1. Computer vision and convolutional neural net-works this will work like reading satellite images from google earth or similar application does at close range of the streets.

The € model can the se trained using a CNN. to avoid vast like trees and parked cars

4 Python and C++ because it works well with teams models. and C++ most Python is easier to right from a developers point of view and C++ is less capitnual (es expensive) and make your model work better.

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8
Functional requirements.

9

All depends on the model that's developed. If the model doesn't notch.

The A lot of ~~models~~ functions need to be in sequence such as the address, ~~the~~ screen abed, satilette images then passed on to the model

You consider updating on the application.

Suggested ~~the~~ to add a function ~~for the~~ ~~user~~ to notify the user when the ~~rfastest~~ route is no longer quick due to real -time changes.

Good, ~~very~~ fast, ~~regular~~ previews clerk in tenbu

Google Maps.

For work, ~~air~~ code helps to set clarindbu just ~~are~~ one regular.

enlarging hard
Navisate : enlarge ~~hard~~ to read the picture

4. Pre - program all addresses to hope hoping to go to.

5. Motorway, which lane to use, static and ~~three~~ three lane messaging system letting you know early before turnins.

6.
Petrol station let you around.

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