**RESEARCH PROPOSAL ON MOBILE AUTO MECHANIC FINDER SYSTEM**

**BY**

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**REG NUMBER: SC212/0743/2015**

**SUBMITTED ON**

DATE:  **15TH October, 2018**

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**THIS IS A RESEARCH PROPOSAL SUBMITTED TO SCHOOL OF COMPUTING AND INFORMATION TECHNOLOGY IN PARTIAL FULFILMENT OF ACQUIRING DEGREE IN BACHELORS OF SCIENCE IN SOFTWARE ENGINEERING.**

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# CHAPTER ONE:

## 1.0 INTRODUCTION

**1.1 BACKGROUND OF THE STUDY.**

Mobile auto mechanic finder is a mechanic application with variety of automobile makes or either in a specific area or in a specific make of automobile that allows the users or the car owners to locate the nearest car service station and assigns the mechanic to the user by alerting the nearest available mechanic. (Levas, 2011). Online mobile auto mechanics applications and web based applications that have been developed includes The motor ombudsman (UK), Autocurador (India), Gumtree (south Africa) and AA Kenya(Kenya).

The **motor ombudsman** is a mobile auto mechanic that has been initiated in the United Kingdom to help the car owners to get car services within a very short period of time immediately their cars broke down. its offers services such as car servicing, car repairs, MOTs, tyres, exhaust and more. For a basic garage search a user just enters the town or postcode and click search. (Ombudsman, 2016)

**Autocurador (mangaluru)** application was designed by students of NIT.K, India. Autocurador (Mangaluru) offers a wide range of services, right from engine servicing and wash through a network of service stations in that particular locality where the customer wants to book the service from and it does offer breakdown services and the best part is that it also offers pick and drop facility. (Chokra, 2017)

**AA KENYA** is an online auto mechanic web based in Kenya that plays a big role in helping the motorist who are frustrated and desperate to get car services along the road. It Offers services such as maintenance and repair of vehicles, providing the motorist with information and advice about purchase, negotiating attractive premiums, road mapping and the setting up of petrol depots, all of this service requires the customer to log into AA Kenya websites for them to get assigned a technical mechanic depending on the kind of the problems they have. (Fenzi, 1971)

The problem with these mobile and web page auto mechanic applications are, they do not work when there is no internet connection, it requires the user or the customer to be online to get in touch to the nearest available mechanic within their localities. This is a bit problematic and its actually makes the existing applications unreliable and inefficient to rely on.

The features of these application are similar and common, for example the applications require the car owners to sign up to register and log in over the internet to get access to the car service providers. The other thing is that these named applications requires the car owners to have smartphones such as androids, iPhones and windows phones to get services over the internet.

Therefore, MOBILE AUTO MECHANIC FINDER tries every possible way to make the car owners to enjoy better services, this application helps every individual to access and locate a nearby car services station by just dialling a certain code on their phones. This application is based on unstructured supplementary service data (USSD) which is onscreen and SMS (short message services) application. With this feature anyone using a smartphone or keypads phones can access the required services.

### **1.2 PROBLEM STATEMENT;**

The issue of car breakdown is very rampant along the Kenyan roads and the car service station are very limited. The long distance drivers travelling in this regions are in great danger when their trucks and cars break down. They will be stuck there for long time before being rescued or attended to. They are in fear of attacks by the bandits, wild animals and as well as die of hunger and thirst.

The study done in United Kingdom by ombudsman, he came up with The motor ombudsman, a web based application that could help eliminate this problem once and for all, the user has to key in the town postcode to locate the nearest available cars service station. Students from NIT.K in India formed a n a web based application called AUTOCURADOR, they also seek to solve the same problem which they did. Other examples are GUMTREE in south Africa and AA Kenya.

However, the car owners and the motorist are still experiencing problems despites the development of these applications, the applications put in place work on availability of internet and use of smartphones for that matter. This is quiet disturbing and annoying more likely when the car owners and the motorist are operating in remote areas like north eastern Kenya and some parts of rift valley where there is not internet or poor internet connection.

In response to this problem, this study proposes to investigate several options to make this application more convenient, efficient and reliable to the car owners and motorist. I plan to consider introducing less expensive way to mitigate the problem noted above. The proposed additional feature that will end this misery once and for all, is the use of UNSTRUCTURED SUPPLEMETARY SERVICE DATA (USSD) which is a mobile based frame work for messaging, which only needs a network and this is very advantageous to any other person owning a smartphone or keypads mobile because they can still enjoy the services by just dialling a certain provided code.

### **1.3 OBJECTIVES**

#### 1.3.**1Gerneral objectives**

To develop a mobile based auto mechanic finder system with SMS based option.

#### **1.3.2 specific objectives**

1. To gather requirements that will help in the development of mobile auto mechanic finder system.
2. To design an SMS based system that will help car owners to locate the nearest car service stations providers within their locality which is less time consumptions in the sense that they should not wait for long to have their problems solved
3. To develop a system that is efficient and reliable to the customers by making sure that those who have no access to smartphones gets the same services as their counterparts
4. To implement and validate a system that will help users to be stress free when there is

No internet connection.

### 1.**4 JUSTIFICATION OR SIGNIFICANT OF THE STUDY**

This study is expected to be of great benefits to the following;

**Car owner’s and the motorist**. The study will actually provide real time communication and feedback to the stranded motorist and car owners who have been involve in a car breakdown. This application is a short message service (SMS) based, the clients can access any available car service station in that locality at ease. Therefore, they will be not in any great danger of attacks from an intruding enemies and wild animals.

**Community and the passengers.** The community here is the people, to be specific the passengers, sometimes a public service vehicle will break down at a very hostile environment where there is not water, surrounded with danger of being attacked by the bandits and wild animals. An SMS mobile auto mechanic application will come to the rescue of this people. Such that the driver has to key in some of the provided codes and there with them the mechanic will be there to find and help them.

### **REFERENCES.**

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**CHAPTER 2: LITERATURE REVIEW**

2.1: **REQUIREMENT GATHERING.**

Requirement gathering is just a procedure used to collect information about a specific or a particular problem in a particular domain. Therefore, here are some of the techniques used to collect data. These includes;

**2.1.1 INTERVIEWS**

An interview is a conversation where questions are asked and answers are given. In common parlance, the word "interview" refers to a one-on-one conversation between an interviewer and an interviewee. Therefore, requirement gathering and system analysis can be conducted using this technique because it actually involves the end user and the developer. The end user can be able to tell where the problem is in the existing systems and the developer can try every possible way to resolved and improve on the same problem stated by the end user.

**2.1.1.1 ADVANTAGES**

Accurate screening:

Capture emotion and behaviour:

Keep focus:

**2.1.1.2 DISADVANTAGES;**

Cost is a major disadvantage for face-to-face interviews. They require a staff of people to conduct the interviews, which means there will be personnel costs. Personnel are the highest cost a business can incur. It’s difficult to keep costs low when personnel are needed.

The quality of data you receive will often depend on the ability of the interviewer. Some people have the natural ability to conduct an interview and gather data well. The likelihood of the entire interviewing staff having those skills is low. Some interviewers may also have their own biases that could impact the way they input responses.

Manual data entry: If the interview is administered on paper, the data collected will need to be entered manually, or scanned, Data entry and scanning of paper questionnaires can significantly increase the cost of the project. A staff of data entry personnel will need to be hired. Mobile surveys on iPads, tablets, or other mobile devices can cut-down on manual data entry costs and information is ready for analysis.

**2.1.2: SURVEY**

A survey is a data gathering method that is utilized to collect, analyse and interpret the views of a group of people from a target population. Surveys have been used in various fields of research, such as sociology, marketing research, politics, psychology etc. this technique is the most of the convenient technique to collect a lot of data and it is cost effective.

**2.1.2.1 ADVANTAGES**

**Low cost:** When conducting surveys, you only need to pay for the production of survey questionnaires. On the other hand, other data gathering methods such as focus groups and personal interviews require researchers to pay more.

**Convenient data gathering:** The online survey method has been the most popular way of gathering data from target participants. Aside from the convenience of data gathering, researchers are able to collect data from people around the globe.

**High representativeness:** Surveys provide a high level of general capability in representing a large population.

**Precise results:** they provide uniform definitions to all the subjects who are to answer the questionnaires. Thus, there is a greater precision in terms of measuring the data gathered**.**

**2.1.2.2: DISADVANTAGES**

**Inflexible design:** The survey that was used by the researcher from the very beginning, as well as the method of administering it, cannot be changed all throughout the process of data gathering.

**Not ideal for controversial issues**; Questions that bear controversies may not be precisely answered by the participants because of the probably difficulty of recalling the information related to them.

**Possible inappropriateness of questions:**

In this research I consider taking a survey as a convenient technique for requirement gathering. Survey is convenient in the sense that you can gather a lot of information within the shortest possible time. The cost to conduct survey is cheaper than conducting the interview to gather information.

2.2: **DESIGN AND IMPLEMENTATION OF THE MECHANIC FINDER APPLICATION**

A design is simply the creation of a plan or convention for the construction of the object, system and measureable human interaction.

Implementation is actually putting a design into

**2.2.1 INCREMENTAL OR ITERATIVE**

Incremental approach is divides the project in various independent parts and developing these sub-parts at the same rate or different rate and integrating them when ready. These can be completed and integrated into a common repository as they become ready. Once these parts are ready, next set is picked. It is also possible that all the parts can be simultaneously worked on and integrating them when ready in the central repository. In this technique the system is developed in phases to make sure that the errors are minimal or zero before the full systems is developed. for example, you can start by designing the interface and then the backend part of the system separately then later you integrate them together to form a full system.

**2.2.1.1 ADVANTAGES**

More flexible; less costly to change scope and requirement.

Easier to debug and test during a smaller integration.

Each iteration is an easily managed milestone.

Easier to manage risk because risk pieces are identified and handled during its iteration

**2.2.1.2 DISADVANTAGES.**

Each phase is rigid and do not overlap each other.

Problems may arise pertaining to system architecture because not all requirements are gathered up front for entire system.

**2.2.2 SPIRAL MODEL**

The spiral model is one of the newer adaptive approaches to the SDLC. The spiral model includes several adaptive features that will cycle over and over through the development of the project until the completion of the project.

The spiral life cycle is shown as a spiral model that begins with the planning phase first from the centre (inward) of the spiral, eventually working its way outward, over and over again, until completion of the project. The planning phase will include activities such as feasibility study, a survey of user's requirements, overall design choice, generation of implementation alternative, and implementation strategy. The purpose of this phase is to have enough information to build a prototype

**2.2.2.1 ADVANTAGES**

Development is fast and features are added in a systematic way.

There is always a space for a customer feedback.

**2.2.2.2 DISADVANTAGES**

Risk of not meeting the schedule or the budget

Its works best for larger projects only also demand risk for project expertise

Documentation is more as it has intermediate phases.

For its smooth operation spiral model needs to be followed strictly.

**2.4 .1: THE MOTOR OMBUDSMAN;**

The motor Ombudsman is a mobile auto mechanic that was initiated in the Westminster, London, it is the first voluntary and fully-impartial private sector ombudsman that provide a self-regulatory environment for automotive industry using it chartered trading standards institute approved motor industry code of practices.

The motor ombudsman provides an authority for the first time for the resolution of disputes within the motor industry for those that cannot be solved directly between a consumer which is the user and the trader. consumers can find a garage they can rely on using the motor ombudsman garage finder.

Thousands of garage including independent garages, main dealers and manufacturer authorised repairers that are accredited to the service and repaired code listed on the code of practise. Garages are available to review by the consumer helping others to find the garage that they can trust.

Garage finders covers the whole of the UK and Northern Ireland making it more suitable for the civilian to locate the garage and their problems resolve within the shortest possible time. The user is provided to key in the town codes and locate garage near to them.

The **motor ombudsman** offers services such as car servicing, car repairs, MOTs, tyres, exhaust and more. For a basic garage search a user just enters the town or postcode and click search. (Ombudsman, 2016)

**2.4.2: STRENGTH OF THE MOTOR OMBUDSMAN**

The motor ombudsman is a very powerful mechanic and garage finder platform in the United Kingdom. This platform provides real time communication and feedback between the users or the car owners and the mechanic, it also provides varieties of car service therefore the consumer can minimise time wastage for locating other services and the motor ombudsman reduces the cost of that’s they offer their services at a lower price.

**2.4.3: WEAKNESS OF THE MOTOR OMBUDSMAN.**

The motor ombudsman has a limitation and weaknessjust like any other platforms around. the motor ombudsman is a web-based platform that actually gives an impression that it depends on internet connection to allow the user to get the access to the garage finder. Therefore, if there is intermittent internet connection it means that the consumer cannot be helped.

According to the MoneySavingExpert.com report, the report has found that the ombudsman landscape to be too confusing and unequal and the ombudsman failures are leaving consumers feeling frustrated, out of pocket and that the whole process is completely waste of time.

Secondly ombudsman powers are completely inconsistent with varying standards for membership, authority and the ability to enforce decisions. This “devalues” the meaning of the term ombudsman.

Thirdly uploading document on communication ombudsman sites not the easiest.

2.5.1: **Autocurador (mangaluru)** application was designed by students of NIT.K, India. The founders godana dilip and Kumar gunda wants a four-wheel mechanic finder hassle free. When asked about the idea for staring up the app, they said “personal experienced that happen a year ago was the reason we had gone on a long drive when a bike parked on the road fell on our vehicle and resulted in a dent on our SUV”. when they approached the nearest car showroom they quoted a hefty price to clear the dent. Through this life experienced the dual just decide to develop a web-based application to help other population in India from such worst scenarios.

Autocurador (Mangaluru) offers a wide range of services, right from engine servicing and wash through a network of service stations in that particular locality where the customer wants to book the service from and it does offer breakdown services and the best part is that it also offers pick and drop facility. (Chokra, 2017)

**2.5.2 STRENGTH OF THE AUTOCURADOR APP**

This application has brought up a good experienced to the Indian people at large, the car owners can book a service at any stations near their locality rather than hiring more expensive car showrooms at the eve of the car breakdown. Consequently, the garage finder has become a hassle free for four wheel owners, what is need Is just to sign up or sign in for the app to locate the nearest available services stations.

Another major advantage is the convenience factor, mobile mechanic comes to you and even able to work on your vehicle while you are at work, assuming your office is in an area conducive to such work. This eliminates the need to take time from work school or other responsibilities in order to service your car and save you a significant amount of money.

**2.5.3: WEAKNESS OF THE AUTOCURADOR**

As web-based application it only operates on internet connection, this means that the user has to be connected to access the services offered by the applications. Therefore, it’s become a big problem when the user is at intermittent internet zones, this actually gives an impression that the user will be stacked there for long as we know until the good Samaritan arrives for the rescue.

The most glaring disadvantage to this app is limit to access to certain equipment’s which typically found in a physical mechanic shop additionally if this mobile mechanic is working alone there could be a limitation on certain jobs that require more than one tech to complete.