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

**BY**

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# CHAPTER 2: LITERATURE REVIEW

## 2.1: REQUIREMENT GATHERING.

Requirement gathering is 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 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. (Johnson, L. 2013).

## 2.1.1.1 ADVANTAGES

**Accurate screening,** face to face interview helps with more accurate screening. The individual being interviewed is unable to provide false information in most occasions. Therefore, the researcher is as good as collecting the right and correct data of information concern a specific problem in a specific domain.

**Capture emotion and behaviour,** there is no doubt in interviews because the researcher can possibly study the behaviour and the emotion of the person being interviewed. Therefore, the researcher can definitely know if the collected data is correct or not

**Keep focus,** the interviewer is the one having control over the interview and can keep the interviewee focused and on track to completion. This gives an advantage to the one conducting a study on the existing problem because he/she will be getting real experience of the problem in that domain from the horse mouth.

## 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. (Schwarz, N.2016).

## 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.

## 2.1.2.2.3 CONCLUSION ON REQUIREMENT GATHERING TECHNIQUES

In the motor ombudsman and autocurador application requirement gathering was done using interviews.

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 method is a systematically structured approach to effectively integrate a software based service or component into the workflow of an organizational structure or an individual end-user. System design and implementation techniques are as follows;

## 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. (Wagner, R. 2006, October).

This technique is more important because it is easier to debug and test the system during a smaller integration, more flexible in the sense that it is less costly to change scope and requirement, each iteration is easily managed milestone and it is easier to manage risk because risk pieces are identified and handled during its iteration

The technique has a number of disadvantages for example each phase is rigid and do not overlap each other and problems may arise pertaining to systems architecture because not all requirement are gathered up front for entire system

## 2.2.2 SPIRAL MODEL

Spiral model is a combination of waterfall and iterative model, each phase in spiral model begins with the design goals and end with the client receiving the progress. Spiral SDLC model starts with a small set of requirements and goes through each developments phases for those sets of requirements. (Boehm, B.2011).

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.

Spiral model is important in the sense it is fat and its features are added in a systematic way to the system and there is always a space for customer feedback.

Looking for its disadvantages it actually works best for large projects, documentation is more as it has intermediate phases and it smooth operation needs to be followed strictly, this means that if you don’t follow it rules and procedures you may end up building a wrong thing altogether.

## 2.2.3 PHASING

It is the method of system implementation that involves changing from existing system to a new one that take places in stages. The autocurador used this method to implement their system. The importance of this methods is that the issues of around scale can be addressed without major impact and the training can be completed in small parts, but there is also a big problem related to this technique, the problem is that it takes a lot of time to get the system fully online than other methods and there is a possibility of data loss if part of the system fails. (Breton, G. 2014, August).

## 2.2.4 DIRECT

This is the implementation methods used to implement the system when no phased or pilot is needed. It actually makes sure that the old system goes off or retired and the new system to be developed goes a live. The method has been used in the development of the motor ombudsman and the autocurador system.

The importance of this techniques is that it does not need the system to be more critical. The problem is that if you are not sure how the system will work. (Govokhina,2014)

## 2.2.4.3 CONCLUSION ON DESIGN AND IMPLEMENTATION TECHNIQUES

In the design and implementation of the proposed system, I will use iterative method to design the system because it is very easy to monitor the progress of the system given that every phase is develop iteratively then later integrated to a full system and the phasing method to implement the system simply because in phasing you can deal with issues around scale with no impact and the issue of correctness is observed because there will be minimal error made.

## 2.3 .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)

## 2.3.2: 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. (Ombudsman, 2016)

## 2.3.3: 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. (Ombudsman, 2016)

## 2.4.1: 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)

## 2.4.2 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.

## 2.4.3: 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.

## 2.5 CONCLUSION

In the previous study conducted to solve the existing problem, majority of the developed web-based application have really tried to make it hassle free to get any available car service station for the car owners. The motor ombudsman, the Autocurador and AA Kenya and a few auto mechanic applications put in place to locate car service stations. These application have really help a lot, in the sense that booking a car service at your place of work, home and the anyway has become very easy and less costly.

From these studies conducted, they have assumed and conclude that everyone can access internet connection in order to get access to the car service provides which is not true, this is actually a problem to be mitigated since not every place internet connection is good, sometimes the customer may not access the smart phones thought the technology has developed. The research has failed to tell us what will the user do when there is internet connection problem. That’s why in this research I have introduced the use of USSD frame work to help the user to get the services to locate a mechanic by dialing a certain provided code.

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