Mobile Application for Android to Submit the Road Complaints

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ABSTRACT

Because of the large number of accidents that occur due to road problems and damages to vehicles as a result of potholes in the roads, water pools, etc., citizens and residents need an application that facilitates the process of filing a complaint for these problems, so this application will meet the needs of citizens and residents in this regard. As it is an application that takes care of citizens and residents in terms of methods from the beginning to the end, that is, from the beginning of filing a complaint and receiving it to processing their request. Currently, this complaint is being implemented manually, as the citizen is forced to go to the Ministry in order to submit the application and fill in the data through papers. This paper seeks to review the current system with the aim of developing a smart solution to support citizens and residents in solving their problems related to roads and the problems they face continuously, such as potholes, water pools, and others. Which will include a special application for submitting a complaint about the roads, determining the location of the problem and attaching a picture of it, so that the responsible authorities can see the problem and verify it. The application also provides the status of the complaint and clarification to the applicant in the event that the application is under implementation or has been processed This application will help to better serve these citizens and residents as their problems will be resolved in an efficient and timely manner. The solution will be based on mobile technologies to make it easier for citizens to access and web technologies for internal staff.

Introduction

Citizens and residents in the community or the country need support from the state authorities or the responsible authorities in meeting their needs. It is common to see accidents constantly increasing in the country, which are caused by one of the road problems, as the responsible authorities, i.e., the Ministry of Transport, must support individuals and meet their needs by providing a platform or application that helps citizens submit their complaints related to roads in the application in order to find solutions. suitable for her. The application for submitting complaints related to road problems will serve as a communication platform that will facilitate citizens' access to employees at the Ministry of Transport. This application will allow citizens to submit their complaints smoothly. This application also provides the advantage of attaching the damage site and a picture of it in order to facilitate access to it.

Literature Review

According to (Ray, Shinde & Shirode, 2018), this platform can help civic engagement by serving as a channel for citizens and local residents to report road and environmental defects. Other researchers have also noted (Deshmukh & Rajput, 2016) that the importance of this application lies in improving and increasing trust between citizens and their government, as it improves decision-making processes and leads to sound decisions. This researcher's paper (Prasad, Patil, Beldare & Shinde, 2016), discussed an app called RepotLah which includes a mobile app that people use to alert authorities about issues such as potholes, broken sidewalks, and malfunctioning traffic lights. Moreover,

(Alkandari, Abuzaraida & ALFoudery, 2021) discussed the rapid dispatch solution system which allows both the government and its representatives (the people) to know the risks faced by the roads in any given area and then eliminate the.

Methodology and Discussion of Findings

Methodology for Software Development

The choice of methodology for implementing a project depends on the nature of the project and in this project, the step-by-step model was identified as the most suitable for the implementation of the road complaints application. It is one of the common methodologies used in such projects as: 1- Easily adapting to changes, 2- Easy to change requirements, 3- Lower price, 4- Finding less errors, 5- Providing high quality application, 6- High satisfaction for customers.

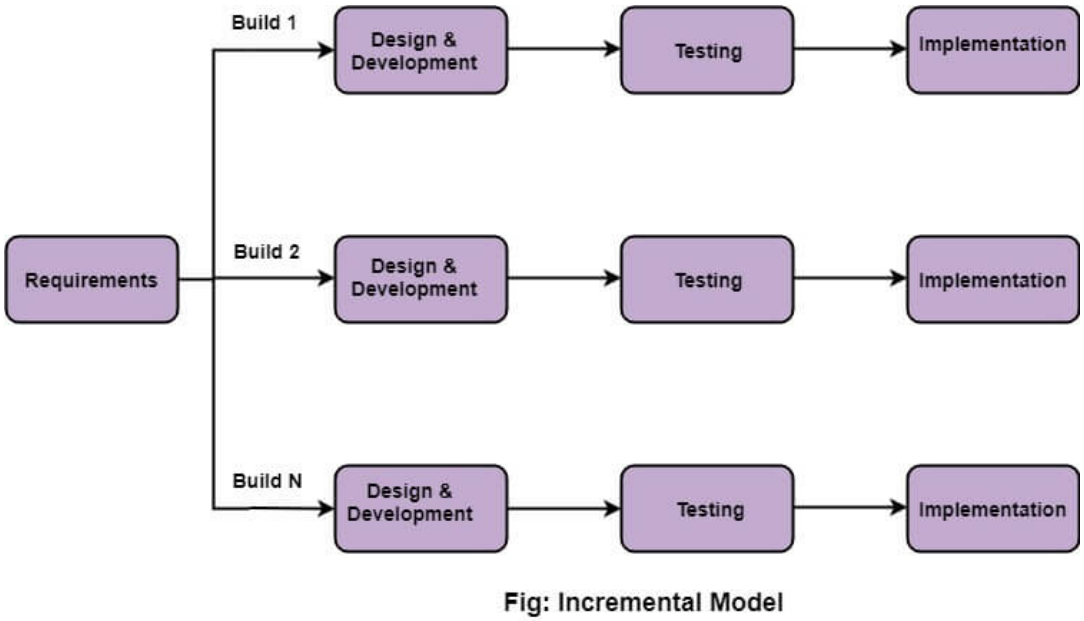


Figure 1. Incremental Model

Methodology for Data Collection

In this project, the questionnaire is used as a primary collection method to collect information about citizens and how or to what extent they accept the application related to submitting complaints about road problems and measure their response to it. Questionnaires can be structured to collect quantitative data or unstructured to collect qualitative data, the structured questionnaire is designed to collect accurate data while the unstructured questionnaire is designed to collect data based on more open-ended questions (Bhat, 2022). In this study, the questionnaire consisted of a combination of closed-ended questions. Questionnaires allow a lot of data to be collected in less time, they are not expensive and save resources, they can cover different areas that are not limited to a specific place, people can answer clearly because of their identity being ignored, easy analysis with the online tool that through the platform, scalability High can easily add more questions. (Zdenka, Petr & Radek, 2011).

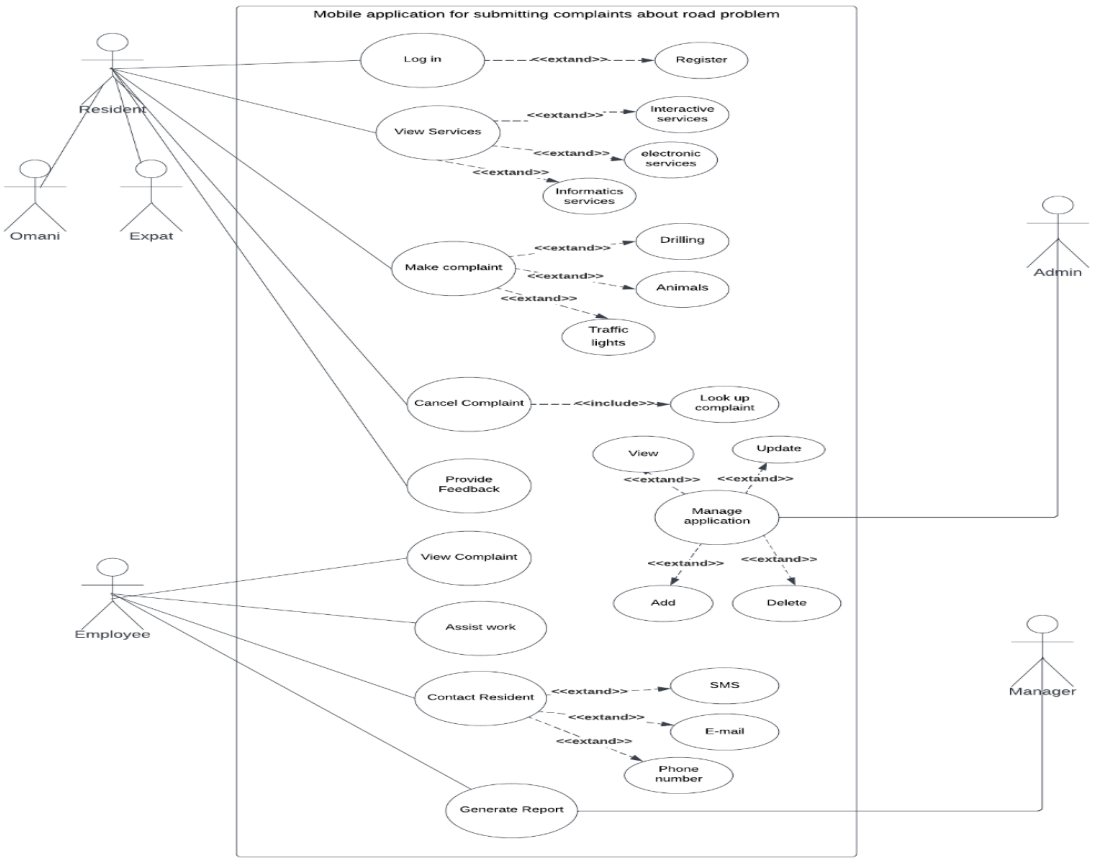
Discussion of Findings

67.6% of female users will be using this app, compared to 32.4% of male users. The age range between 18 and 25 will utilize this program at a rate of 47.1%. While the rate for people aged 25 to 34 was 38.2%, the rate for people aged 35 and over was 8.8%. 100% of respondents agree that an app for reporting road damage will lessen accidents. The most common problems are Potholes, which account for 41.2% and then came the broken lights, which may constitute 38.2%. At the end is pets on the streets which may constitute 20.6%. In addition, 82.4% of the population prefers to use the developed methods instead of using the traditional methods of filing a complaint, and 17.6% of the population wished to use the traditional way. 79.1% of respondents believe or agree that the application has a significant impact on building the country's infrastructure, but 2.9% of people do not share this belief.

Proposed System Design

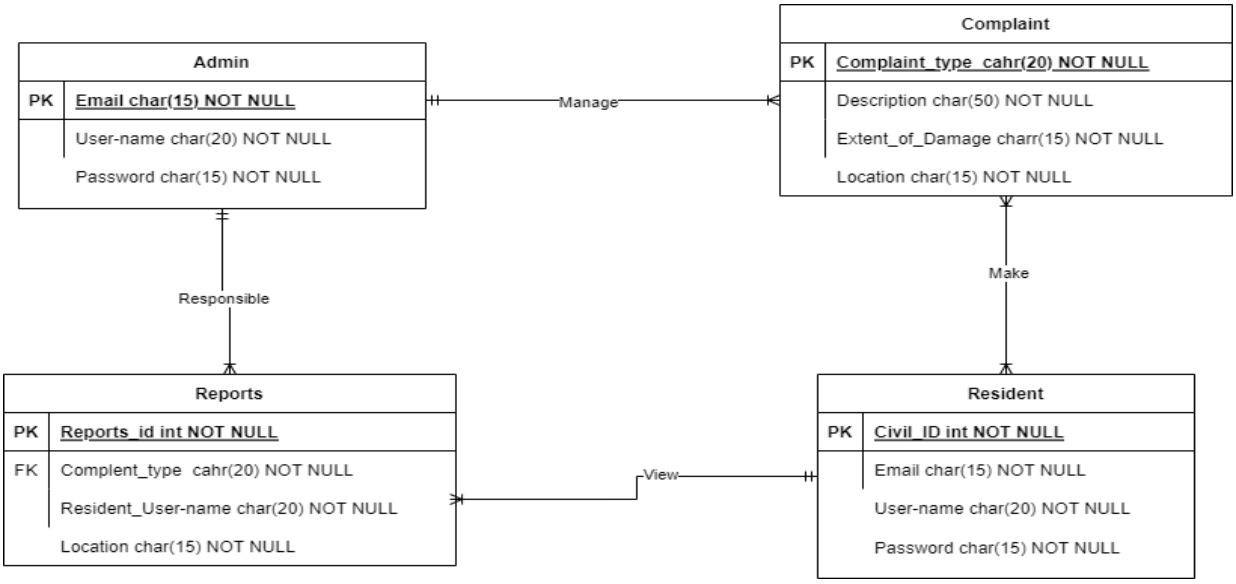
Use Case Diagram

The following diagram illustrates the use case for detailing system users related to this project. It shows the interactions that occur between actors with the system and the processes that occur within it.



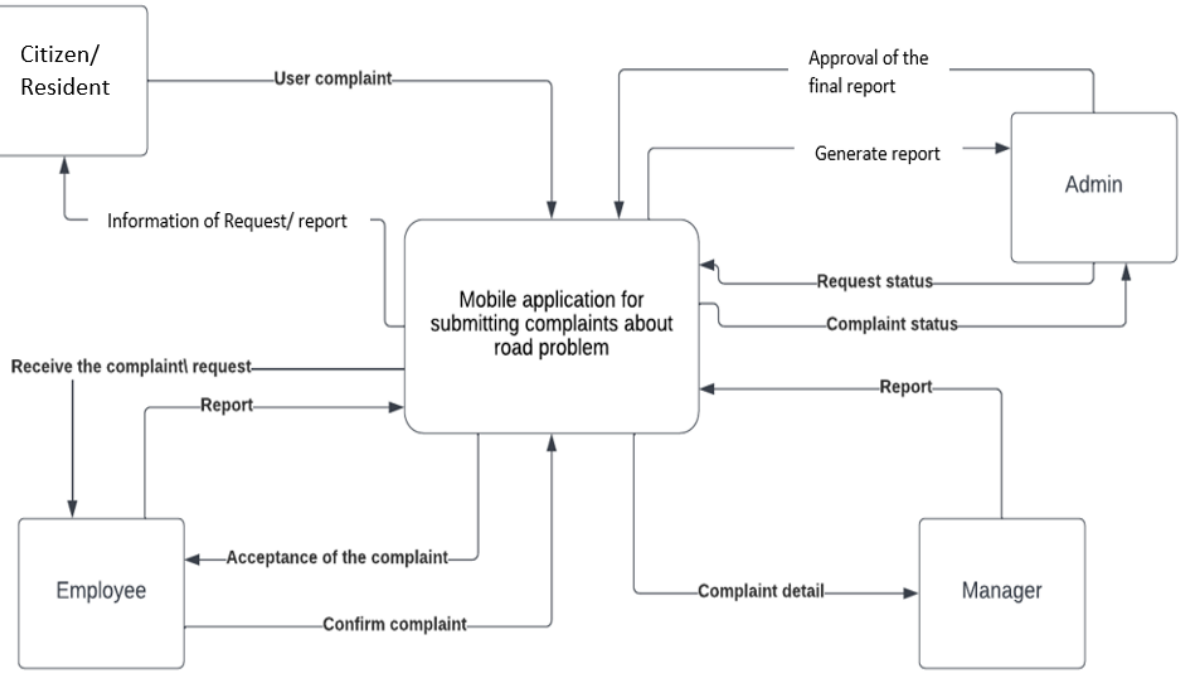
ER Diagram

The ER diagram shown below is a type of flowchart that shows how "entities" such as people, objects, or concepts relate to each other within a system.



Context Diagram

The context diagram below shows how external entities interact with an internal software system. It is mainly used to help companies get around the scope of the system.



Conclusion

Time management for the project was a really challenging assignment, however I was able to handle my time well and finish the work on time because to the knowledge I gained from this endeavor, which aided me figure out how to

design an effective software. There were also several challenges in this project, particularly significant of which were in deciding on a theme, creating a title for the project, and finally, designing the project.

The services for submitting complaints about road problems are greatly beneficial to the Ministry of Transport and also to citizens and residents, so this application is a communication platform between the Ministry of Transport or the responsible authorities and citizens, by submitting a complaint. It is necessary to take into account the needs of citizens and residents and to solve the problems they present quickly.

Limitations

The idea of creating a solution to road problems that citizens and residents face on an ongoing basis was for the Ministry of Transport, as this application can contribute to protecting the environment and protecting people's lives from accidents and risks, and they can benefit greatly from it if they see any problem on the roads such as potholes, they can register in the application and file a complaint for that until the responsible authorities find a suitable solution. But as we know that any application has strengths and weaknesses, the main or important weakness in this application is to persuade citizens to use this application in the event of seeing any problem in the roads and not to ignore it in order to create an urban environment free of road problems and clean.

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