Crowd Management
“TAAKAD Application”

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Abstract

Crowd management is a public practice where large crowds are managed. It used to ensure the control of gatherings and crowded places. The goal of that process is to facilitate the movement between places, reduce risks, prevent disasters, and the correct flow of movement and traffic. Malls and public places are constantly considered as crowded places, sometimes there are visitors with a number greater than the capacity of the place, which leads to overcrowding and congestions, and this causes them to be prevented from entering or unwanted waiting and loss of time. In the literature review, there are some studies and systems that have discussed crowd management in distinct and intelligent ways. However, we have found that their studies do work to know the peak times but do not provide suggestions to users for similar places. This project provide a solution for showing crowds in a form of mobile application. The solution would use historical data to provide suggestions to visitors and identify the peak times in public places and to facilitate access to these places, it would also help in reducing overcrowding and reducing waiting times in public places, which support decision makers to decide and people as well to decide about their trips and other activities.

Objectives

In this project, we aim to achieve the following objectives:

- Implement a mobile application that assists the user in making excellent decisions.
- To design a system that assist the collection and processing of data and information about the visitor movement and location.
- Provide a suitable suggestion time for the visitors.
- Make it easy to access, use and rely on.

Methodology

There are many software development methodologies, such as waterfall model, rapid model. In this project, we choose a waterfall methodology.

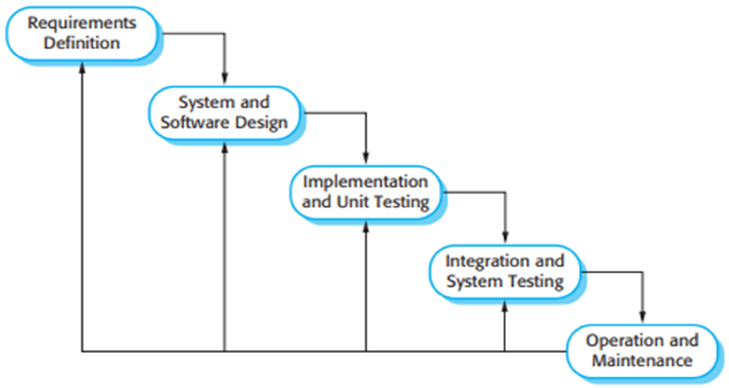

Figure1: waterfall model

Interface & Scenarios

The application has two scenarios:

- The first scene gives the ability the visitor to show the place location information and know the suitable time to visit the place and plan for the activity.
- The second scene the visitor has the ability to scan the QR-code to check in to the place location and also, we set a reminder for the visitor to know if the visitor still in the place or not and the reason of that to know the current number of the visitors to help us identify the peak time in the places, providing appropriate dynamic visualizations that reflect the real visitors in the place.

Frist Scenarios

Start

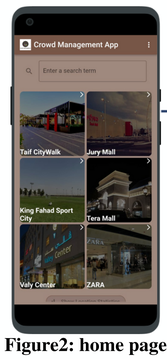

Figure2: home page

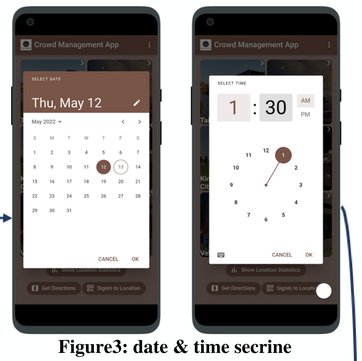

Figure3: date & time secrine

End

Figure5: direction page

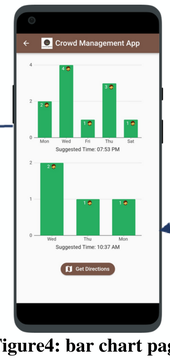

Figure4: bar chart page

Second Scenarios

Start

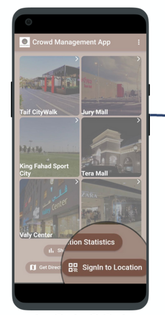

Figure6: QR-CODE button

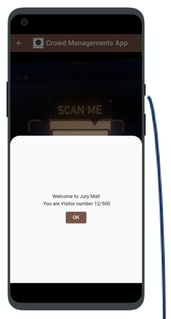

Figure7: scan QR-CODE

End

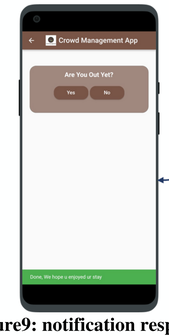

Figure9: notification response

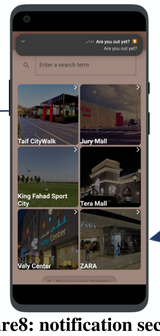

Figure8: notification secrine

Result

Contributions/Significance of the Project. By the end of this project, we expect to obtain the following benefits:

- Help identify peak times in public places.
- Supporting decision-makers to take the most appropriate course of action and facilitate movement.
- Facilitating access to public places and reducing overcrowding.
- Reducing unwanted waiting in public places and refusing to enter them.

Conclusion

Crowd management is one of the problems that researchers have always been striving to find innovative solutions using technologies. In this report, our solution focusing on managing and facilitate the access also to know the peak times in public places in addition to contributing to reducing crowding and aiding decision-making, furthermore, talked about a brief review of similar systems and studies and the method that will be to develop the system and the tools used, in addition describing the application scenarios and the interfaces of the application in detail. We are planning to improve and add our future work ideas to enhance the application efficiency.