

company/business. By allowing the customer to have a rough idea of the meal (as shown in Figure 4) he/she is about to get, would help him/her to order according to his/her need and save the food. Interface which is located in the kitchen (Figure 5) would manage the workload and offer the staff a trouble-free environment.

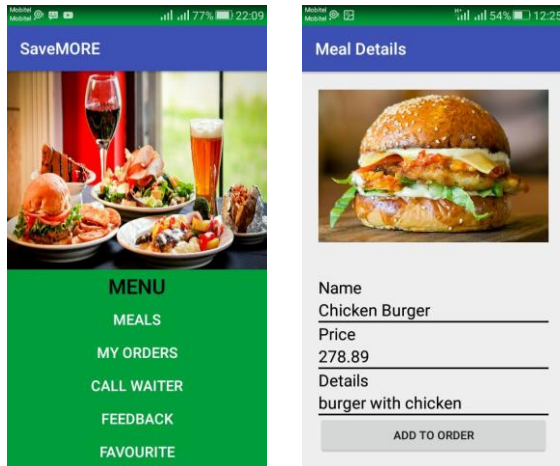


Figure 4: Interfaces of the Android application



Figure 5: An Interface of Kitchen UI

Following are some of the major challenges faced by the research group.

- Build/adjust algorithms to achieve accurate results.
- Decide between an app installed tablet and a public Android application for the customers to download and install themselves.
- Compatibility of the software tools used. (SQL Server Business Intelligent Studio, Android Studio and Arduino IDE.)
- Building the Data mining model was not easy as the exactly required data sets could not be found. Therefore data had to be pre-processed and adjusted in order to perform the mining.

To avoid the listed problems, the team had to seek for support from other individuals who are working as Software Developers in the industry and to refer tutorials, YouTube videos, books etc. related to algorithm development and to develop the Android and Java applications. The system was initially planned only to reduce the food wastage by providing a summary with suggestions to the management. After the interviews and the Questionnaire were carried out, the research group learned that the meal or dish served in time to preserve the quality (freshness and taste) is important as well (shown below in Figure 6).

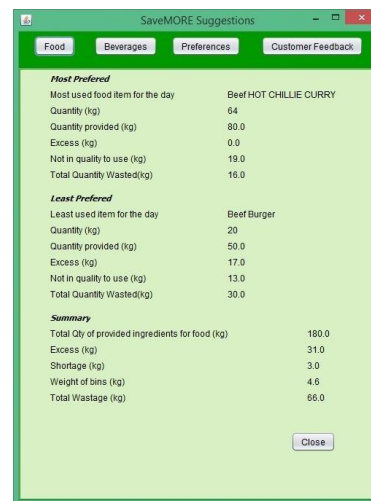


Figure 6: Suggestions Interface

After additional research the group decided to give a Tablet to the customer without giving making them to install the application themselves, otherwise an additional limitation would have been created as such every customer of the hotel has to have the app installed. In addition, if the application was to be installed by the customers themselves, the application would have to reconsider its compatibility with the other platforms like iOS and Windows. The system was changed accordingly to support the changes.

The accuracy of the SaveMORE varies according to the amount of data used for data mining. The database contains the data of orders completed in more than three years of time which prediction accuracy.

Limitations

- When measuring the weight, all the plate waste was taken as the waste of weight

though they may contain the bones, covers, etc. which cannot be consumed further.

- Practically it is impossible to take ingredients waste weight separately though it is taken separately from the time of meal preparation.
- To some extent the attitude of people will change the amount would be consumed such as some people might not have intentions to waste food but they might not be interested in ordering food according to their need. Such situations could increase the wastage of food which is impossible to prevent by our system.

V. CONCLUSION AND FUTURE WORK

Waste of food which is a hidden crisis around the world will be reduced by the implemented automated system to reduce the food wastage in the field of hospitality- SaveMORE, through delivering efficient suggestions on how to reduce the wastage to the management on a daily-basis. Future research directions for this research paper would include a web application so that the customer may not need to worry to come to the hotel/restaurant to have their favorite meal but to order online. In addition the customers may then be identified separately and will be able to provide customer intimacy which will be a better option from the business perspective as well as the technical perspective. As the main objective, this paper has introduced a solution for the food wastage in the field of hospitality.

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