Group 27: Fresh Food App Description Summary

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The Fresh Food application is a mobile application which will let the user know if food has gone bad by analyzing the odor released by spoiled food. Some chemicals released include methane (greenhouse gas given by rotting vegetation) or Ammonia (rotting fish and meat). The chemical makeup of the odor is read by external odor sensors and the live sample data is sent to the app which will calculate edibility and estimate days of freshness depending on the type of food. This will remove the guesswork of deciding whether food has gone bad.

Every year, an estimated 1 in 6 Americans get sick from foodborne diseases. Also, 108 billion pounds of food is wasted in the United States which is partly responsible for around 6% of total global greenhouse gas emissions. About $218 billion dollars are lost from wasted food just in the US annually. Therefore, the main purpose of the Fresh Food app is to save money for businesses and ordinary people by:

1. Reduce food waste
2. Increase food safety
3. Reduce greenhouse gas emissions

The work done by the Fresh Food app is to determine if the food is edible and make estimations of the remaining time left for the food using sensors to detect the gas/odor emitted from the food. To do this work, the user manually setups the sensors and makes sure that the measurements are being received successfully to the app. Then with the data collected the app will analyze and output the estimated edibility time left for the food. We know that 85% of Americans own smartphones, which gives our application high accessibility to users. Some assumptions we made include that the users can properly set up odor sensors and identify the food. We assume the odor sensors are set up properly because this impacts collected data, and if not set up properly, can potentially harm the user with false readings and estimates. We assume that all spoiling foods release a detectable gas/odor. If not, we can list specific foods for the user that cannot be checked by the app.

The Fresh Food App can involve users such as the consumer, buyer, supplier, vendor, shipper, and the system. All of these users will be able to utilize the Fresh Food mobile app and its separate hardware to check the quality and edibility of produce, meat, or dairy items. The separate hardware has a built-in sensor to detect different gasses and chemical emitting from the food. This hardware can be placed on, wrapped around, inserted in, or hovered over the food item. Further research will need to be done on how the sensor can test packaged food items. The app will start off by allowing the user to search and select a specific food item they would like to test. When doing this, the database for foods will be accessed to find that particular food item. After the food item is selected, the hardware will be used on the food item. The sensor built in the hardware will be activated to collect data. Once the data is collected, the user will be able to

view the results on the percentages of different gasses and chemicals detected, and whether that food item is edible or not. The user can also view food safety information and expiration. Food safety information can consist of ingredients, nutrition information, safety tips, and health information on the food item. Expiration will provide the user with the expiration date and number of days until the food item is edible. Google can be used to help provide this information for that particular food item.

One scenario of this product being used starts off with a supplier who is a company that supplies fresh produce, meat, and dairy products to a buyer which is a restaurant business. The company will have its own shipper to ship the supply to the restaurant. During stops, the shipper can test out some of the supply to check the edibility of the food. The shipper can inform the company on how the supply is doing. Once the supply is received by the restaurant, the employees of the restaurant can use that supply to create menu items. The consumer, or the customer of the restaurant has had food poisoning in the past with another restaurant, so they test out the food from this restaurant before consuming it. The readings are fine, and the consumer enjoys the food. The consumer gives a good rating and review to the restaurant. The restaurant receives many more good ratings and reviews from its customers. As a result, the restaurant gives a good rating and review to the supplier company.

Key stakeholders include the client and the customer which will primarily be responsible for the purchasing of the fresh food and the testing of the food by their categories which include dairy, meat, fruits, and vegetable products. A few other responsibilities will include being able to setup the application via sensors, understand the data given by the app such as percentages of harmful gas given and knowing how to access their google calendar while reading the expiration dates accurately. Last responsibility will be how to navigate throughout the app to be able to access all of its features which includes an information center that gives the user information on the gas detected, the nutritional health of the foods tested, and safety tips. The application will also have some users who will help with development and maintenance. It is crucial that there be a team made up of developers, engineers, legal experts for advice, food chemists to guarantee accuracy when it comes to information, Marketing team drawing in new users, and financial advisors to assist with implementing a budget.

The application will be available for android and iOS and there will include a database to be able to access the variety of food categories as well as the cloud to access the safety tips and food storage information. The sharing API will connect to the google calendar to keep track of expired food for the user and the Login API will make it easier for the user to access this information when logging into their account. In order for apps to be distributed via app store a constraint would be needing approval first for it to be allowed. As for the budget constraints we will need a budget for the maintenance team as well as the other stakeholders which include developers, engineers, legal experts, marketing team, food chemist, and financial advisors.