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| |  |  | | --- | --- | |  | *Cost-Effective Food Monitoring System* | | **Major:** | **Name:** | | CS | Travis Wright | |

**Design Requirements**

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| Req No. | Obj No. | Requirement |
| 1 | 3 | The system must notify users when food expires or is soon to expire. |
| 1.2 | 2 | The system will utilize Internet connectivity to look up product nutritional information, approximate shelf life, and recipes. |
| 1.3 | 2 | The system must store a list of products being monitored, with data for each product. |
| 1.4 | 4 | The system must allow for quick reprogramming of NFC tags for use with other products. |
| 1.5 | 4 | The NFC tags used in the system shall be able to be moved or repositioned quickly and easily. |
| 1.6 | 3 | The system shall suggest recipes with products that are expiring within 7 days. |
| 1.7 | 4 | The system shall allow for the removal of NFC tags if they are no longer being used. |
| 2 | 5 | The app shall notify users with a higher priority when sensors detect that the monitored item is determined to be harmful to eat. |
| 2.1 | 2 | The app shall provide a basic help system with instructions on how to utilize and configure the food-monitoring functionality. |
| 2.2 | 1 | The NFC tags must have a large antenna to ensure that phone interaction is quick and painless. |
| 2.3 | 2 | The app shall be able to look up approximate product shelf life if the product cannot be found online. |
| 2.4 | 2 | The app shall provide a disclaimer upon first startup, acknowledging that the data cannot be fully relied upon for every food item. |
| 2.5 | 2 | The app shall be able to be used and synced between multiple smartphones, allowing an entire household to view product expiration data. |
| 4 | 5 | The sensors shall use Bluetooth Low Energy (BLE) for communication, allowing the use of an inexpensive coin cell battery for power. |
| 4.1 | 5 | The sensors must be dishwasher-safe for easy cleanup |
| 4.2 | 5 | The sensors must be made of metal, ensuring durability over many uses. |
| 5 | 2 | The app data must be able to be transferred to a new device if required. |

**Definitions:**

System – Food monitoring system, run and directed using a smartphone app.

App – Smartphone application used as the center for food expiration statistics, recipes, and system configuration.

Product – Food items that the user purchases.

Device – Android smartphone that can install the app.

Sensors – Metal probes that can be used to monitor statistics of products such as raw meat.