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***Proposal for the development of Store Helpline***

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https://github.com/gurusharma/Store_Helpline

**Executive Summary**

As a student in the Computer Engineering Technology program, I will be integrating the knowledge and skills I have learned from our program into this Internet of Things themed capstone project. This proposal requests the approval to build the hardware portion that will connect to a database as well as to a mobile device application. The internet connected hardware will include a custom PCB with the following sensors and actuators RFID Reader, PIR Sensor, Touch Screen. The database will store User Authentication and Store ItemList. The mobile device functionality will include Generation Of Recipt, Display the Cart and Feedback and will be further detailed in the mobile application proposal. I will be collaborating with the following company/department None. In the winter semester I plan to form a group with the following students, who are also building similar hardware this term and working on the mobile application with me The people I was working with in the last semester.. The hardware will be completed in CENG 317 Hardware Production Techniques independently and the application will be completed in CENG 319 Software Project. These will be integrated together in the subsequent term in CENG 355 Computer Systems Project as a member of a 2 or 3 student group.

**Background**

The problem solved by this project is Every supermarket has to hire employees to help thier customers with various problems regarding products, for example, finding the right product in the right place. But the associstes usually fall behind in assisting the customers and therefore some customers leave the store with bad impression. Using our design, the associate and the user will be aware of the current line and time estimates.. A bit of background about this topic is Whether in-charge of a small, individually-owned grocery store or the one that is part of a larger chain, managing a grocery store successfully involves considerable responsibility. Grocery store managers must ensure that the store runs smoothly, that items are priced competitively and that customers are satisfied. Having a thorough understanding of key concepts, involved in effective grocery store management, is imperative for any manager dedicated to the success of his/her store. What customers need in the current era is as follows:  1. Sell what they need and have it in stock when they want it.

2. An easier way for them to shop and find what they are looking for.

3. Get all the information they need in order to quickly decide what to buy.

4. Have friendly helpful people available to make the shopping experience a pleasant one. Currently, some of the stores have placed 'Help' buttons at a few locations within that the customers can press and wait until an associate gets free to help them..

Existing products on the market include [1]. I have searched for prior art via Humber’s IEEE subscription selecting “My Subscribed Content”[2] and have found and read [3] which provides insight into similar efforts.

In the Computer Engineering Technology program we have learned about the following topics from the respective relevant courses:

- Java Docs from CENG 212 Programming Techniques In Java,
- Construction of circuits from CENG 215 Digital And Interfacing Systems,
- Rapid application development and Gantt charts from CENG 216 Intro to Software Engineering,
- Micro computing from CENG 252 Embedded Systems,
- SQL from CENG 254 Database With Java,
- Web access of databases from CENG 256 Internet Scripting; and,
- Wireless protocols such as 802.11 from TECH152 Telecom Networks.

This knowledge and skill set will enable me to build the subsystems and integrate them together as my capstone project.

**Methodology**

This proposal is assigned in the first week of class and is due at the beginning of class in the second week of the fall semester. My coursework will focus on the first two of the 3 phases of this project:

Phase 1 Hardware build.
Phase 2 System integration.
Phase 3 Demonstration to future employers.

*Phase 1 Hardware build*

The hardware build will be completed in the fall term. It will fit within the CENG Project maximum dimensions of 12 13/16" x 6" x 2 7/8" (32.5cm x 15.25cm x 7.25cm) which represents the space below the tray in the parts kit. The highest AC voltage that will be used is 16Vrms from a wall adaptor from which +/- 15V or as high as 45 VDC can be obtained. Maximum power consumption will be 20 Watts.

*Phase 2 System integration*

The system integration will be completed in the fall term.

*Phase 3 Demonstration to future employers*

This project will showcase the knowledge and skills that I have learned to potential employers.

The brief description below provides rough effort and non-labour estimates respectively for each phase. A Gantt chart will be added by week 3 to provide more project schedule details and a more complete budget will be added by week 4. It is important to start tasks as soon as possible to be able to meet deadlines.
Raspberry Pi 3, Touch Screen input Module, PIR Sensor, RFID Reader, connecting cables.

**Concluding remarks**

This proposal presents a plan for providing an IoT solution for We propose a solution to the above problems with interavtive touch screens installed at various locations throughout the superstore, which allows useres to look through the products and ask for help. Once they have registered for help, the right associate will help them. They would also be able to see their place in line using the phone app. Once the process is complete, the software will send the user a short survey which will help in store's future decisions.. This is an opportunity to integrate the knowledge and skills developed in our program to create a collaborative IoT capstone project demonstrating my ability to learn how to support projects such as the initiative described by [3]. I request approval of this project.

**References**

[1] 0

[2] Institute of Electrical and Electronics Engineers. (2015, August 28). IEEE Xplore Digital Library [Online]. Available: https://ieeexplore.ieee.org/search/advsearch.jsp

[3] Advertisement and shopping guide system for large supermarkets based on wireless sensor network. (2012, May 25). Retrieved September 18, 2017, from http://ieeexplore.ieee.org/document/6272826/