110: IoT Enabled Smart Inventory

Category

new product development

Primary Area

Computer

Secondary Area

Electrical (low voltage)

Tertiary Area

Software

Organization

TechPOS International Corp - https://techpos.ca/pricing/

Background

Small and medium sized (SM) retailers need a mixture of personnel and technology to be able to compete with online stores and big box retailer. The technology needs to automate common processes, integrate popular systems. With these in place the technology can partially monitor and manage the store. All these are possible with the help of cloud and IoT. Currently at TechPOS we are achieving this with the use of cloud technologies. To further help SM retailers IoT is key. One of the areas is to know exactly how much inventory is available using IoT and connect that to rest of TechPOS ecosystem.

TechPOS is an agile fun startup working in emerging technologies. We are always looking for people interested in working in an energetic fun work environment. There are open positions in both cloud and IoT related fields and group members have a huge advantage compared to other candidates.

Objectives

Container with an embedded pressure/weight sensor that reads the total weight of the products at any given time. The containers publish their weight/pressure changes to the internet.
A system where multiple containers are handled. Containers can join or leave the system. The system needs to know when a container's sensor is faulty and not responding. The number of containers is in the range of 1 to 150 containers. The sensor is chosen by students from commercially available sensors. The sensor measures in mg.

The system must attach the containers to different products.
Based on the product configured for a specific container, the system should be able to estimate the

number of products currently stored in the container and detect if a product is added/removed. TechPOS products should be able to configure containers through the system's api (attach containers to products). TechPOS products interact with the system to read current number of products in a specific container.

Any addition or deduction of products should be logged.

For all of the above cost has to be considered for the final product. A SM retailer doesn't have the budget to spend on costly technologies.

Deliverables

Identifying ideal design and implementation of a system/app that handles and configures the containers (With cost in consideration)

Identifying ideal mechanisms for TechPOS ecosystem to talk to the sensors. Cost for the final product is a factor (With cost in consideration)

A fully functional prototype (container with embedded sensor and transmission) (With cost in consideration)

Documentation sufficient to allow our company to evolve the design and refine the device.

Contributions Organization is Able to Provide

Financial support based on project needs and following organization's approval.

Additional Considerations

Microsoft cloud and IoT technologies are a huge huge plus

Project is Proprietary?

Yes, IP and NDA agreements are required for this project.

Key Words

IoT, Cloud, Architecture Design, . sensors, measurements, network.