SOFE 4610 Fall 2021 - Design & Analysis of IoT

Project Title: Smart Anti-Theft System

[Proposal]

Project Group No: 11

Group Members:

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Github Link - https://github.com/esam191/Smart-Anti-Theft-System

Project Description:

The project aims to develop an IoT application based on the IoT platform that we will build in class using, “Develop a Fully Flexible and Scalable Internet of Things Platform in 24Hours by Anand Tamboli”. We decided to build a smart anti-theft system as our IoT platform. We will essentially create a device for monitoring the property to track any kind of unusual movement. Any sort of movement will trigger an alarm and send a notification to the user on a web app when turned on. The piezo-electric sensor is used to track any movement or sense pressure around the house. This sensor would be connected directly to a microcontroller, which would then utilize its camera to take a picture of the intruder and send it to the user on a web app.

Functional Requirements:

FR-01: The device should be able to successfully sense pressure using the Piezo-electric sensor.

FR-02: The device should be able to take an image of the intruder.

FR-03: The device should be able to send notifications to the user if an intruder tries to enter the property.

FR-04: The device should be able to send the image to a web application.

FR-05: The device should be able to track even a single movement using the sensor.

Nonfunctional Requirements:

N-FR-01:(Usability) The device should be able to display the image on a web application.

N-FR-02 (Availability): The device must be able to operate on low power consumption.

N-FR-03 (Performance): The device should use a Piezo-electric sensor to sense pressure and monitor any unusual movement.

N-FR-04 (Reliability, Availability): The device should support dual sensing redundancy in case of sensor failure.

N-FR-05 (Performance): The device must have low latency when transferring data from the sensor to the microcontroller.

N-FR-06 (Accuracy): The device should display the notification within a couple seconds if an intruder tries to enter the property.