

**Program: ESE 4009**

**INSTRUCTOR:** Prof**.** Mike Aleshams

# Group# 4

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**Project Proposal**

**Project Title:**

Home Security System.

**Description of the latest similar system:**

A home security system is a network of devices that all work together to secure your home. A typical system comes with a control panel, door and window sensors, motion detectors, a high decibel alarm, and signs for your yard and windows. Each of these components plays a part in keeping your home secure, with the control panel acting as the system’s primary control center.

* This project will help to secure places or things from theft by detecting theft right away and it spots the area where motion happened.
* A camera along with raspberry pi will help to take continuous images.
* An IR sensor present in the system will sense the motion and pass the sensed signal to the raspberry pi for finding the detected motion in the camera footage.
* Whenever motion is identified, the system makes use of image processing on the live video to detect theft. It stores the footages in a USB drive for the future reference.

**Limitations of the latest similar system:**

* In the existing system, Raspberry Pi is used that has less processing speed and don’t have built-in hard disk.
* IR Sensor is being used in existing system, which is suitable for shorter sensing range and even affected by hard objects.
* This project is only suitable for some limited areas like personal area surveillance such as personal office cabin.

**Solution 1:**

* **Block Diagram**

POWER

SUPPLY

LPC 2148

CLOUD

STORAGE

WI-FI

MODULE

BUZZER

LCD DISPLAY

CAMERA 2

CAMERA 1

PIR

SENSOR 2

RF RECEIVER

PIR

SENSOR 1

ESP 32

* **Features**
* **Features**

* LPC 2148 is used in spite of Raspberry Pi as a master Microcontroller.
* ESP 32 is considered as slave device.
* PIR Sensor is used instead of IR Sensors.
* **Hardware and Software Requirement**
* Hardware of a security system consisting of main control board which is driven by a LPC2148 microcontroller.
* ESP32 chip is used for WiFi connectivity.
* Proximity sensors for human motion detection.
* Wireless door / window sensors.

**Solution 2:**

* **Block Diagram**

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* **Features**

* ESP 32 has inbuilt programming memory, which makes ESP 32 as a master device while interfacing with the camera device.
* **Hardware and Software Requirement**
* Multiple PIR Sensors.
* More than one Wifi based wireless cameras.
* Hardware of a security system consisting of main control board which is driven by a ESP32 microcontroller.
* ESP32 also used to connect to the internet over WiFi.
* Android app support
* **References:**
* Home security. (2020, April 23). Retrieved from <https://en.wikipedia.org/wiki/Home_security>
* Aman Sharma. (2018, March). A Review paper on Smart Home Security System using GSM Module. Retrieved from <https://www.researchgate.net/publication/330498136_A_Review_paper_on_smart_Home_security_system_GSM_module>
* Umera Anjum & B. Babu. (2017). IOT Based Theft Detection using Raspberry Pi. Retrieved from

<https://www.ijariit.com/manuscripts/v3i6/V3I6-1188.pdf>

* Publication, I. A. E. M. E. (n.d.). AUTOMATED SECURITY SYSTEMS. Retrieved from <https://www.academia.edu/43060350/AUTOMATED_SECURITY_SYSTEMS>.
* **Milestones (Deliverables and Time Schedule)**

**Time - 4 Weeks, Total Milestones - 5**

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* **References:**

Home security. (2020, April 23). Retrieved from <https://en.wikipedia.org/wiki/Home_security>

**Instructor’s Remarks:**