Live Security Using Online Motion Detection System

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Abstract- *Live security is essential for occupants' convenience and protection of closed system. This paper aims to develop a low-cost means of home security system using passive infrared and reed sensors. Data from all these sensors is continually received and processed by Arduino Mega 2560 board which act as a microcontroller unit. In case of any intrusion, the sensor is activated and Arduino will trigger an alarm and live stream will be sent to user's mobile or specified IP address via cloud. Cloud storage and streaming happens only when intrusion occur thus reducing the storage and overview time. The low-power Passive Infrared (PIR) detectors take advantage of pyro-electricity to detect a human body that is a constant source of infrared radiation while Reed sensor uses Hall Effect principle to detect any intrusion through doors and windows. Thus the system ensures home safety as well as security.*

Keywords- Arduino mega 2560, PIR sensor, Reed sensor, Cloud, IP camera, Servo motor..

I. INTRODUCTION

This system provides the complete information and the complete implementation of the Live Security Concept. The main aim of the project is to create an effective Security system over the intranet that works only within the Organization. Currently there are many systems available for Live Security Motion deduction. These systems use the TCP/IP protocols to communicate and also for transferring the frames from one system to another. These systems follow the Deep Eye Watching (24/7 surveillance) methods for Live Motion Deduction. In order to solve the problems in the existing system we have to develop a new system. This system broadcast a live video feed to company's intranet and persons considered. A valid person controls the overall system. PIR sensor is used for detection. The basic concept of PIR (passive infrared) is to detect the obstacles within its radius and also detects the temperature (thermal radiation) of object. IP camera capture and stores the live feed in cloud. The Arduino Mega 2560 (microcontroller) is the central hub in circuit design, it Interface and coordinate all components in circuit. It gives the command to other devices. Media is stored in cloud from the Server to which the Camera is attached. Live video is sent from cloud to various specified IP address and can be stored for future purposes. The video can be viewed from any place.
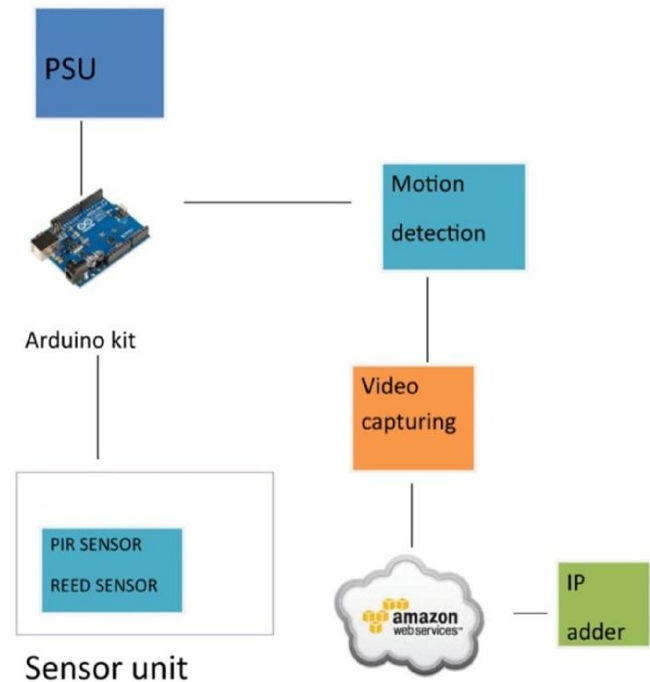
II. BLOCK DIAGRAM

Fig 1. Block Diagram

The block diagram of the system is shown in Fig 1.As mentioned above, the system comprises two units. The microcontroller unit consists of two sensors. The data from the sensors is continually processed by the microcontroller and an alert is sent to the mobile station via CLOUD if something is sensed or something reaches beyond the limit in case of a temperature.

III. WORKING CIRCUIT

The system will remain in deactivated mode initially. Sensor gets activated once intrusion occurs nd IP camera starts live feed and torage to cloud. After activation ystem works as follows:

A. Arduino Mega 2560:

Arduino mega 2560 is a microcontroller board. It has 54 Digital inputs/outputs The Arduino Acts as the central hub for any circuit Related control systems. The Arduino mega 2560 is programmed i[th] an Arduino software. The Arduino software includes a serial Monitor which allows

simple textual ata to be sent to and from the board. This software uses a Capability of uploading the programs y pressing the Upload button. Then the Bootloader starts processing the programs and coordinates with the start of the upload. This setup has some other implications. Whenever the mega 2560 gets connected to computer having Mac OS/Linux, it resets each time a connection is made with the software (via USB).

B. PIR Sensor:

Passive infrared motion detectors (PIR) detect emitted infrared energy given off by humans and animals in the form of heat. When there is a sudden increase in infrared energy, an alarm is sounded. They inject energy into environment in order to detect any change. The pulses are then taken as input by Arduino unit. The unit then activates the system.

C. Reed sensor:

Reed sensor is used as moving part sensing. It is used to count the number of persons inside the closed system. The count is initialized to zero and when count exceeds zero Arduino activates the system. When a person gets in, a +1 count is added and when person gets out a -1 count is done. The number of count indicates the number of person inside the system.

D. IP camera:

An IP camera is a networked digital video camera that transmits data over a fast Ethernet link. IP cameras also called Network camera are most often used for IP surveillance, a digitalized and networked version of closed-circuit television (CCTV).It is mainly used for the complete Surveillance of a particular location or area. In this, if any intrusion exists then the IP camera will start streaming the images in the cloud. It will be further used for future purposes.
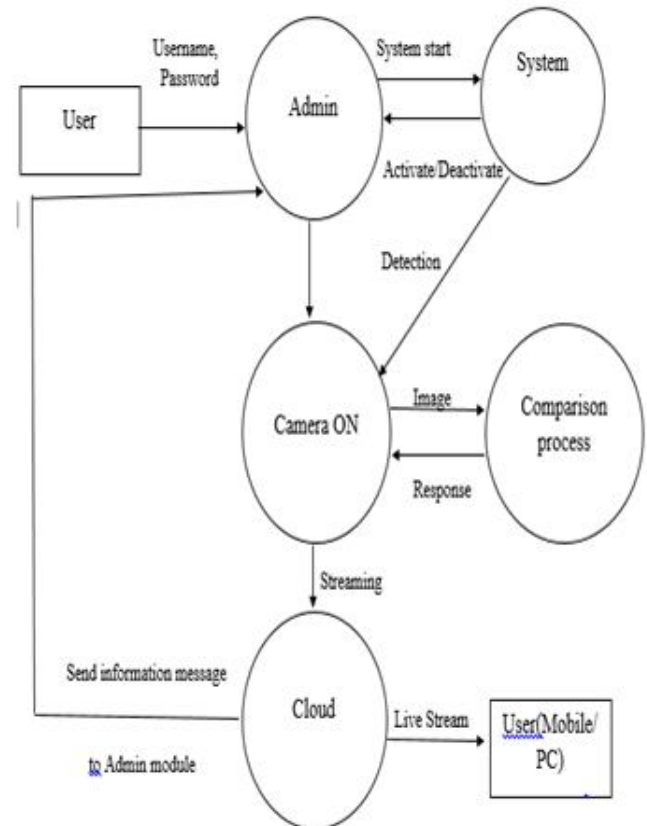

Fig 2.Flow Diagram

IV. CONCLUSION

In this paper the importance of home security measures are elaborated using available programmable sensors like the PIR (Passive Infrared) and Reed sensor which reduce the storage space. The usage of cloud makes it possible for monitoring the closed environment across the globe when sensor gets activated making it more secure. Further the work on advanced security measures including the face detection technique with the help of CANNY's edge detection is under development.

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[7] "Cloud-Vision: Real-time Face Recognition Using a Mobile-Cloudlet-Cloud Acceleration Architecture"Tolga Soyata_, Rajani Muraleedharan_,Coli Funai_, Minseok Kwon†, Wendi Heinzelman Dept. of Electrical and Computer Engineering †Dept. of Computer Science University of Rochester Rochester Institute of Technology