SMART CCTV CAMERA SURVEILLIANCE SYSTEM

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ABSTRACT

The proposed work is Smart CCTV camera surveil-lance system. CCTV camera can be wirelessly monitored and control with the help of the RF module . In the monitoring site, the system captures the video through the embedded multitask operating system. The digital video has been compressed by the MJPEG algorithm. By the TV the users can view the monitors video directly, by the common Gateway interface, the users who are authorized can also control the camera and observe the motion detection.

KEYWORDS- ARM7, wireless sensors, RF module, PIR sensor, IR Sensors, stepper motor, TV, relays, Wireless camera.

INTRODUCTION

The project Smart CCTV camera surveillance system is to enhance the CCTV camera based security systems, which presently exist in different places. The Project Security System by using CCTV Camera is designed using wireless technology. The use of a surveillance system for image detection is becoming more important. An embedded surveillance system is frequently used in the home, office or factory for image processing of the surveillance system and also for traffic monitoring but this configuration requires a high performance core, which works against some advantages of embedded systems, such as low power consumption and low cost. Some designs propose the use of different sensors to track the sequence of the human body movement. Other researchers construct an external signal to trigger the embedded surveillance system by means of a PIR sensor, which is triggered when an intruder enters the monitoring area. The project basically consists of surveillance unit and control unit. This project will works in two modes: Manual mode and automatic mode. In automatic mode PIR sensor will detect person movement and will give signal to the microcontroller to start the CCTV camera by using Relay. IR sensor will track the person movement and give the signal to micro controller. Accordingly stepper motor will be actuated to rotate the CCTV assembly. And in manual mode we will use keypad for the movement of CCTV camera in manual mode. Control unit consist of micro controller, LCD to see the messages, buzzer and LED for indication, Keypad will be used in manual mode for the controlling movement of the CCTV camera.MAX 232 IC will be used for voltage conversion between RF module and microcontroller.

LITERATURE SURVEY

1. *A Progress Review of Intelligent CCTV Surveillance Systems:* CCTV based surveillance has developed from simple systems comprising a camera connected directly to a viewing screen with an observer in a control room, watching for incidents of crime or vandalism or searching for targeted

individuals, to complex multi camera systems with many computers.

The project Smart CCTV camera surveillance system is to enhance the CCTV camera based security systems, which presently exist in different places. The Project Security System by using CCTV Camera is designed using wireless technology. For the object detection no need of multiple camera only single camera cover large area. As the number of camera increases also the cost increases therefore in this project single camera is used for cost effectiveness.

2. *Webcam Based Intelligent Surveillance System***:** The objective of this project is to develop a system that monitors the area in which it is being implemented. An Intelligent Monitoring Sensor is applicable in the area where no one is permissible to enter, also where we need to detect if any motion has been done. Camera used here is not movable. it is fixed in the monitoring area also the camera is continuously on.

In this project in automatic mode PIR sensor will detect person movement and will give signal to the microcontroller to start the CCTV camera by using Relay. IR sensor will track the person movement and give the signal to micro controller. Accordingly stepper motor will be actuated to rotate the CCTV assembly.

3. *Design and Implementation of an Embedded Home Surveillance System:* Web camera is used to capture the images and this capture images upload on wed server for this internet connection is required. But in Smart CCTV camera surveillance system no need of internet connection.

RELATED WORK

A. SURVEILLANCE UNIT: The use of a surveillance system for image detection is becoming more important. An embedded surveillance system is frequently used in the home, office or factory for image processing of the surveillance system and also for traffic monitoring but this configuration requires a high performance core, which works against some advantages of embedded systems, such as low power consumption and low cost. Some designs propose the use of different sensors to track the sequence of the human body movement. Other

researchers construct an external signal to trigger the embedded surveillance system by means of a PIR sensor, which is triggered when an intruder enters the monitoring area. Fig. 1 shows SURVEILLANCE UNIT and fig. 2.shows CONTROL UNIT.
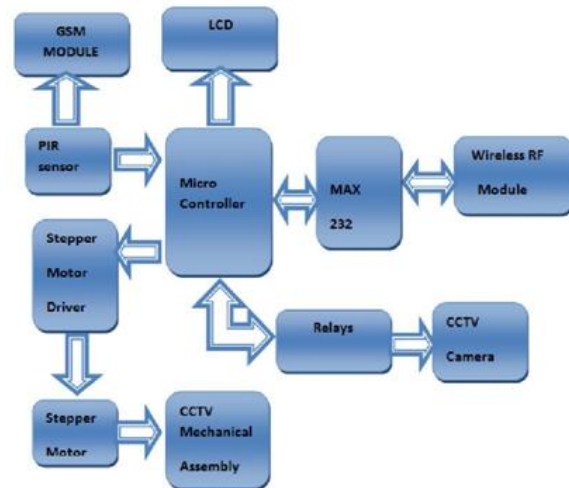

Fig. 1. SURVEILLANCE UNIT

B. CONTROL UNIT: A surveillance camera is a video camera that is used to remotely monitor on an area or building by transmitting recorded images to a central control room. The area is observed using Surveillance cameras/ video cameras. Generally the output of surveillance camera/video camera is monitored by human such as security guard or law enforcement officer as it is connected to IP network or recorded device. This human monitoring leads to several limitations. The proposed system overcomes those limitations to some extends. Wireless camera working (small mini wireless camera is connecting for transceiver and joint red, yellow cables and power supply cable connecting. The camera for connecting the personal computer for one chip for the driver is there and audio, video receiver and connects the antenna beside the tune is there and next side connect the power supply and two cable pin, audio, video. The run the software and audio, video, image vehicle entry and exit capturing the image.

SOFTWARE SYSTEM DESIGN

Fig.3. shows FLOWCHART OF AUTOMATIC MODE and fig.4. shows FLOWCHART OF MANNUL MODE.
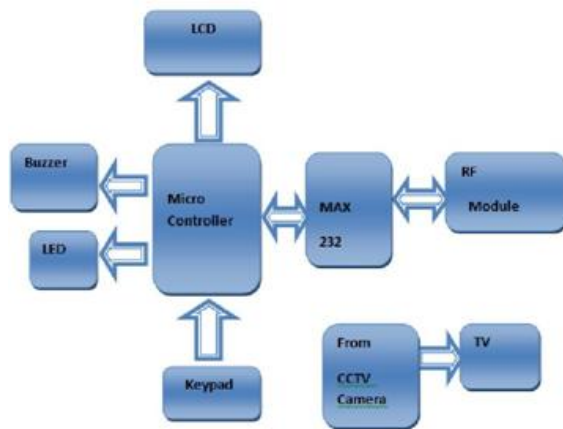
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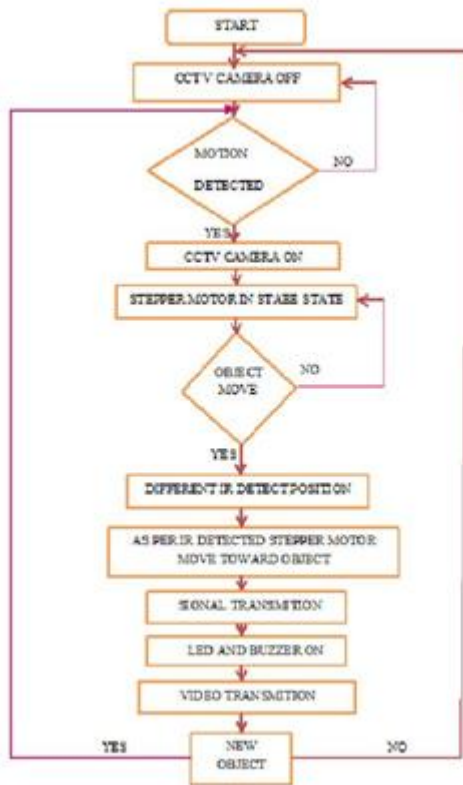
Fig. 2. CONTROL UNIT

Fig. 3. FLOWCHART OF AUTOMATIC MODE

AUTOMATIC MODE has following steps:

1. Motion detected by PIR sensor.

2. Supply of camera ON through relay.

3. Wireless signal send to master unit through zigbee.

4. Led and buzzer ON.

5. Motion of Object detected by IR sensor.

6. As per IR detected stepper motor move.

7. No object camera become off.

MANUAL MODE has following steps:

1. No stepper motor movement.

2. Key is pressed.

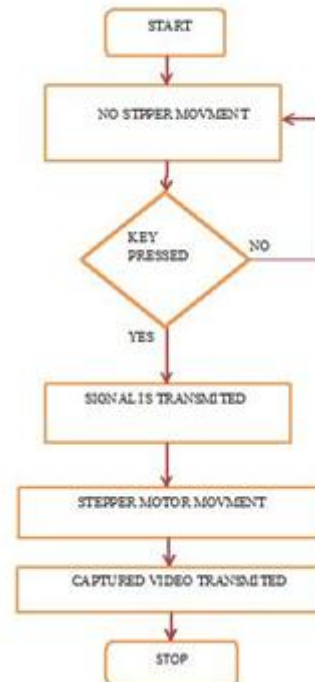3. Stepper motor movement.

4. Captured video is transmitted.

Fig. 4. FLOWCHART OF MANUAL MODE

CONCLUSION

The Project Smart CCTV camera Surveillance system is designed using wireless technology. This project is basically design for providing a security in different areas like military, banks, and industries etc and also save the power, memory required for the CCTV and CCTV footage respectively.

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