

Motion Detecting Camera with High Security System

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Abstract— In this modern era, property crimes are more predominant. This necessitates our need to develop an advanced security system which is the Motion Detecting Camera. It is basically a single camera based security system that can be used to protect valuables kept in a room of a house or property. Most existing camera based security systems involve the use of multiple cameras placed around the room to be monitored. This camera continuously records the video footage of the room and saves it on a central monitoring station.

Key words: Motion Detecting Camera

I. INTRODUCTION

Security is primary concern with day to day life and properties in our environment. This paper describes effective security alarm system that can monitor image capture system. As soon as door opens sensor gets activated with image captured with help of camera. It also serves function of sensing and detecting false intrusion. The term false intrusion here is used to mean any form of attempt to gain entry without proper pre design protocols. Robbery has become common in our day to day life. Countering it, Security systems with cctv cameras are commercially available. In most the places remote surveillance is needed. These system captured image as door opens alarm gets on with transferring data through microcontroller control unit with image can be seen on PC or Laptop.

Security system has been concern of worldwide. As technology is emerging every second, abundant home based or office based or industries based security systems have been developed and implemented to keep welfare security safe. Home security system is an essential mean of protecting homes from illegal invasion and false intrusion. A general home security system consists of CCTV, Web cameras, Buzzer alarm. Web camera or CCTV capture image in 24 hours to identify what goes around the house and in the house around the door which holds evidences if there is false intrusion in house breaking around the door of captured areas. The power consumption is also considerably large as camera is always on to keep recording nonstop and for capturing images. The power consumption is considered as concern of installing a security system.

II. HARDWARE DESCRIPTION

A. Block Diagram

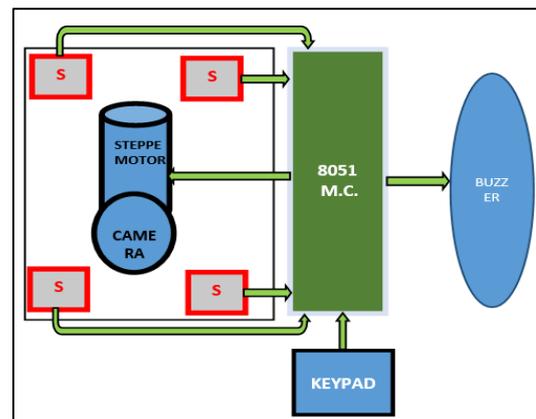


Fig. 1: Block Diagram

B. PIR Sensors

For human body detection a passive electric sensor PIR module is developed. In combination with Fresnel lens a PIR detector is mounted on a compact size PCB with IC-SB0081 and other components to form module.



Fig. 2: PIR Sensors

The variable width of high level output is usually preferred and used.

C. Microcontroller

The AT89S52 is an 8-bit low-power, high-performance CMOS microcontroller with 8K bytes of in built system programmable Flash memory. This device is manufactured using Atmel's high density nonvolatile memory technology and is compatible with the industry-standard 80C51 instruction set and pin out. The on-chip Flash memory allows a conventional nonvolatile memory programmer to be programmed or by the program memory to be reprogrammed in-system. On a monolithic chip, by combining in-system programmable Flash with a versatile 8-bit CPU, the Atmel AT89S52 is a potentially huge microcontroller which provides a highly-manageable and cost-serviceable solution to many embedded system control applications. The features

of AT89S52 are 8K bytes of Flash, two data pointers, watchdog timer, 32 I/O lines, 256bytes of RAM, three 16-bit timer/counters, a two-level interrupt architecture, full duplex serial port and clock circuitry and a on chip oscillator. In addition, for operation down to zero frequency

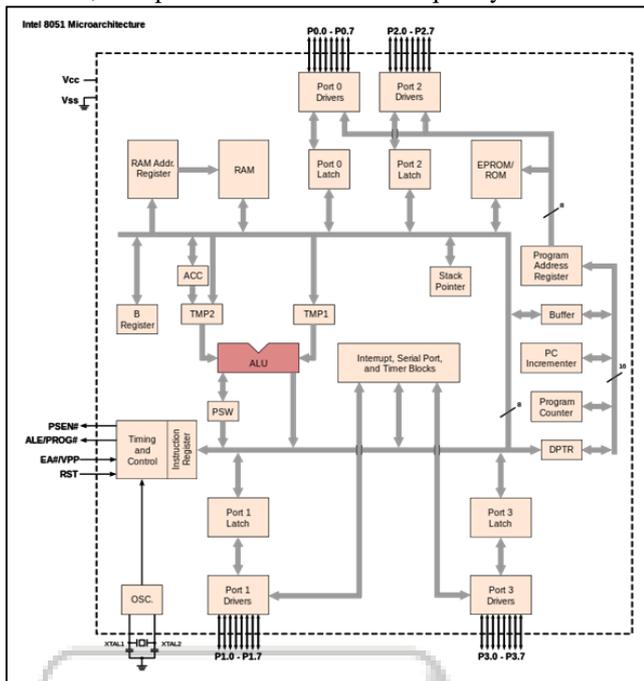


Fig. 3: Microcontroller

The AT89S52 is designed with static logic and supports two selectable power saving software modes. The Idle Mode allows the RAM, serial port, timers, counters and interrupt system to continue functioning and stops CPU functioning. The Power-down mode solidifies the oscillator, until the next hardware or the next interrupt resets it disables all other chip functions but saves the RAM contents.

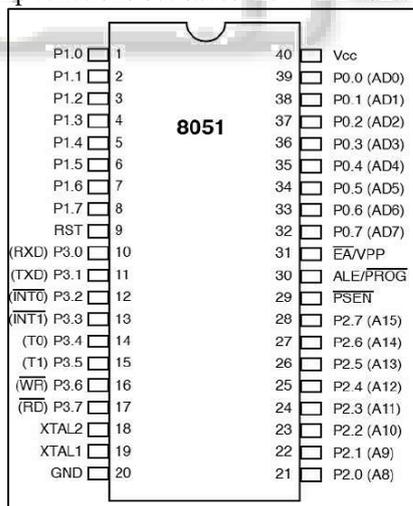


Fig. 4: Pin Diagram of 8051

D. Stepper Motor



Fig. 5: Stepper Motor

A stepper motor is a brushless DC electric motor that divides a full rotation into a number of equal steps. The motor's position can then be commanded to move and hold at one of these steps without any feedback sensor, as long as the motor is carefully sized to the application.

A bipolar stepper motor is used to rotate the camera. The 4 wires of the stepper motor are connected to the 4 output (OUT) pins of H-bridge. The stepper motor needs a 12 V supply which is provided through the +Vmotor pin on the Hbridge. The stepper motor is run in half step mode.

E. Camera



Fig. 6: Camera

A camera is an optical instrument for recording or capturing images, which may be stored locally, transmitted to another location, or both. The images may be individual still photographs or sequences of images constituting videos or movies. The camera is a remote sensing device as it senses subjects without physical contact.

F. Buzzer



Fig. 7: Buzzer

The burglar alarm is built around the 89C51 microcontroller from Atmel. This micro controller provides all the functionality of the burglar alarm. A maximum of 8 sensors can be connected to the burglar alarm. A power supply voltage of +5 VDC is available for each sensor at the corresponding wiring terminals.

G. Keypad

A keypad is a set of buttons arranged in a block or "pad" which bear digits, symbols or alphabetical letters. Pads mostly containing numbers are called a numeric keypad. Numeric keypads are found on alphanumeric keyboards and on other devices which require mainly numeric input such as calculators, push-button telephones, vending machines, ATMs, Point of Sale devices, combination locks, and digital door locks. Many devices follow the E.161 standard for their arrangement.

III. APPLICATIONS

- Use for home security system.
- Office security system.
- Bank security system.

IV. CONCLUSION

Motion detecting camera security system solves many of the problems faced by the multiple camera based systems at an easily affordable cost. The biggest advantage is that we can stop recording the hours of footage of the empty rooms. One can also avoid installing multiple cameras to cover a whole single room. To completely eliminate the use of the microcontroller and instead use the parallel port of the PC to monitor the sensors and control the sensors. Also, advanced image processing techniques can be implemented to trace the intruder once his position has been identified.

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