PC BASED PASSIVE INFRARED DETECTOR FOR THE DETERMINATION OF HUMAN PRESENCE

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Summary

This report describes how computers based passive infrared detectors can be developed to determine the presence of human beings. This report contains 10 sections, covering pyroelectric detectors, signal conditioning, conversion between analog and digital signals, interfacing to the PC, results and discussions.

Sections 1, introduces the needs for automation in the detection of the presence of human beings in the security sector.

Section 2 and 3, covers the introduction to infrared radiation and the means of detecting and the various materials suitable for those purposes.

Section 4, give a brief introduction on the infrared sensing on human beings. It also describes the pyroelectric detectors and materials used for the detection.

Section 5, introduces the general proposed detection system, and describes briefly how the information from the physical world is converted to a form suitable for computer processing.

Section 6, explain the design considerations and the circuit employed. Each circuit employed in the detection system and its operation is accordingly. The algorithm for interfacing the sensor to the computer is also describes.

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1   INTRODUCTION

In security sector, there is a great needs for automation (such as property safeguarding, access control) to detect the presence of human beings. There are numerous methods to implement this, such as using smart card to prevent and detect people from security areas, employing infrared motion detector and the use of CCTV. In this project, it is proposed to use Passive Infrared detector to detect the presence of Human beings that could be used in security control. The basic system consists of three major parts; namely; detection, control and warning.

In this project, the detection and the circuitry involved for a complete interface to a computer is focussed. The work involves detection and modifications carried out on the incident signal existing in passive infrared sensor(PIR). A signal conditioning circuit are then built to process the signal and transmitted it to a personal computer through analog-to-digital conversion circuit and interface card. The system are then assembled complete with a communicating algorithm to read signals obtained from the passive infrared detector.

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