# FAN SPEED CONTROL SYSTEM USING PIC

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### ABSTRACT

This paper describes the process of designing a system that controls the speed of a fan in a room with two exits based on its occupancy and the room temperature. Four pairs of infrared sensors and the LM35DZ temperature sensor detect the number of people and the temperature respectively, and the PIC16F84A microcontroller is used to control the speed of the fan based on those two inputs. The program was written using MPLAB software and the hardware was designed using Circuit Maker 2000 and Protel DXP. Rising temperatures will cause the microcontroller to increase fan speed to provide greater comfort for the room occupants. The fan will shut down when no persons are detected in the room.

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# CHAPTER 1 INTRODUCTION

## **1.1 BACKGROUND OF PROJECT**

The idea of smart rooms and smart houses has long been in place, where certain control systems automatically operate certain devices to provide various benefits such as communication, comfort and security. An intelligently designed building or room can increase worker productivity, provide greater comfort and contribute to energy savings. A smart home can be defined as a house or working environment equipped with technology to allow for devices and systems to be controlled automatically [7]. For example, automation in the traditional home environment can allow for lights to be turned on in advance and doors to open and close in the presence of people. In effect, smart homes and rooms act like invisible butlers, using cameras, microphones and various sensors usually connected to a microcontroller which tries to interpret what people are doing in order to try and help them.

The level of "smartness" of the home depends on the needs of the user. It can range from complex systems with full automation of devices to more basic set-ups such as intruder and smoke alarms. Intelligent homes provide many benefits. It helps to facilitate communications, increase security levels and can potentially save time and energy costs. Apart from those obvious uses, smart homes and rooms can aid the handicapped and elderly and provide greater comfort to the persons living in them.

### **1.2 PROBLEM STATEMENT**

A normal home or indoor environment which is equipped with a ceiling fan normally requires the inhabitant to physically turn on or adjust the speed by a switch, dial or remote control. This project attempts to provide an automated system implementing

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