MPMC PROJECT

SMART HOME AUTOMATION

Group - 5

Sharan Karthick BL
(S20220020311)

Murugan S
(S20220020306)

PJC Naga Sai
(S20220020302)

INTRODUCTION

Objective: In today's fast-paced world, the demand for convenient, efficient, and secure home environments is greater than ever. This project aims to provide a smart solution to automate common household tasks such as lighting, climate control using an accessible microcontroller-based system.

Problem Statement: Traditional home management systems require manual control of devices, which is inefficient and can lead to energy waste. Our project addresses these challenges by introducing an intelligent automation system that seamlessly integrates with the home environment.

Solution Overview: By leveraging the power of the AT89C51 microcontroller and integrating sensors, this smart home automation system automates essential tasks, ensuring a comfortable, energy-efficient, and secure living space.

Components

1 | Microcontroller : AT89C51

Acts as the brain of the system, controlling inputs from sensors and outputs to actuators.

2 | Sensors:

- **PIR Sensor:** Detects Any motion.
- **Infrared Sensor:** Detects human presence
- **DHT:**Measures temperature and humidity of the room

3 | Software Used:

- Keil Uvision
- Progisip

Working Principle

- The AT89C51 microcontroller reads data from the sensors.

- Based on predefined conditions (like motion detection, hand detection, etc.), the controller activates the corresponding actuators:

  1. PIR Sensor triggers the relay to turn lights on/off.
  2. DHT11 Sensor to display the room temperature and humidity.
  3. IR sensors to detect hand motion for water flow in Kitchen.

Implementation

Step 1: Set up the AT89C51 microcontroller on a breadboard.

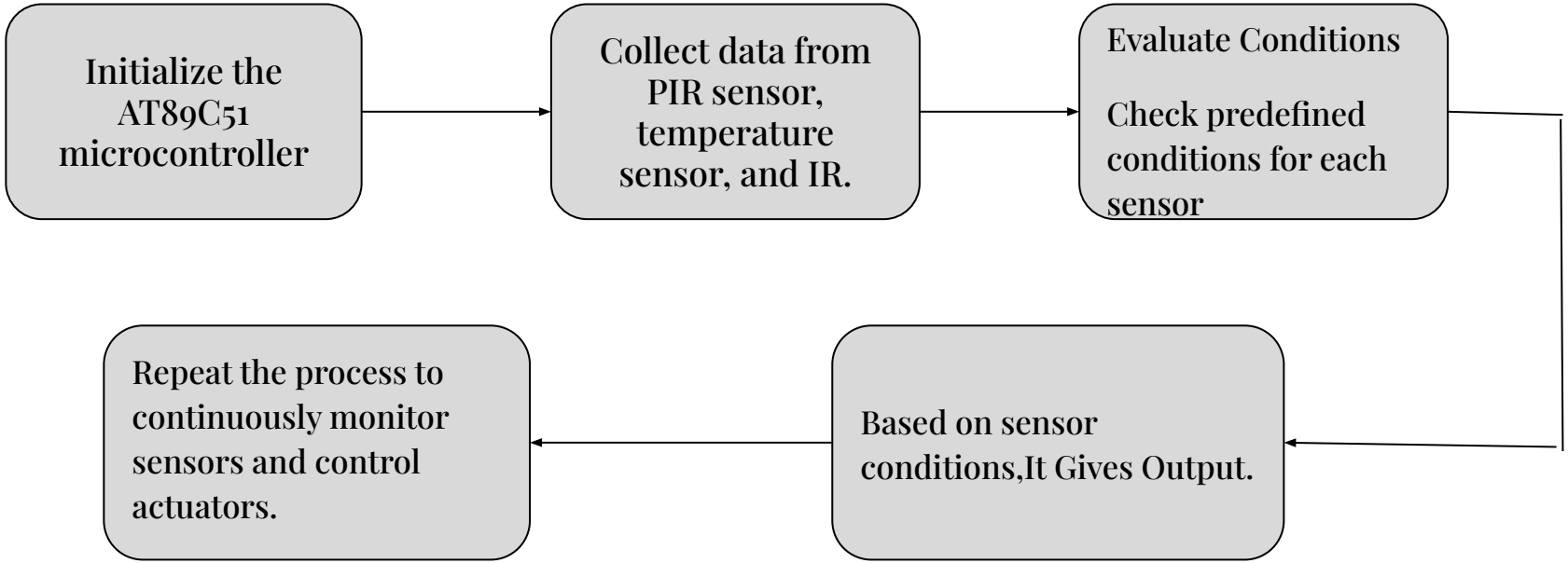
Step 2: Connect the sensors to input pins of the microcontroller.

Step 3: Program the microcontroller to read sensor inputs and trigger Sensors Output based on specific conditions.

Step 4: Test the system in a small home environment for automation of lights, fan, and Other Things.

Step 5: It Display the Output of all Sensors in LCD.

FLOW CHART


Initialize the AT89C51 microcontroller
Collect data from PIR sensor, temperature sensor, and IR.
Evaluate Conditions
Check predefined conditions for each sensor
Based on sensor conditions,It Gives Output.
Repeat the process to continuously monitor sensors and control actuators.

Challenges:

- Connecting LCD to Microcontroller 8051.
- LCD display is not getting refreshing due to incorrect delay value.
- Chip Enable Error due to Connection.
- Verify Flash Error .
- Unable to display all Output in Single Window due to less no of rows so we used Scrolling Algorithm.
- We unable to integrate More sensor due to memory constraints.

THANK YOU