Weekly Progress Report – Week 1

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Domain: IoT and Embedded System

Submission Date: 15-05-2025

I. Overview

This week's primary focus was to explore and understand the implementation of an Automatic Door Control System. This project aims to automate door operations using motion detection sensors interfaced with Arduino.

II. Achievements

• 1. Project Familiarization

- Understood the aim and working principle of the Automatic Door Control System.
- Reviewed how sensors like PIR and Ultrasonic can help detect motion or proximity.

• 2. Component Identification

- Identified required components: Arduino, L293D Motor Driver, DC Motor, and PIR/Ultrasonic Sensor.
- Understood each component's function in the project.

• 3. Workflow Planning

- Designed the sequence: Sensor detects motion → Arduino processes signal → Motor opens/closes the door.

III. Challenges

• 1. Sensor Calibration

- Faced issues with detection range calibration.
- Occasionally, the system triggered without a nearby object.

• 2. Motor Control

- Minor difficulties in controlling the DC motor direction using the L293D driver module.

IV. Learning Resources

• 1. IoT Academy Resources

- Reviewed official documentation and learning modules.

• 2. Online Platforms

- Watched Arduino and sensor integration tutorials on YouTube.
- Referred to forums like Arduino.cc for code-related solutions.

V. Next Week's Goals

- Begin breadboard connections and test sensor data.
- Write basic Arduino code for door control.
- Run initial testing and improve the design based on feedback.

VI. Additional Comments

This week helped me understand the foundational structure of an IoT-based control system. It was exciting to relate theoretical knowledge to practical applications. I'm motivated to build the actual prototype in upcoming weeks.