Training Day 5 Report:

Date: *1 July,2025(Tuesday)*

Location:*PG Block HPC Lab*

Guided by:*Training Instructors (Classroom-Based)*

Main Objective:

To understand and implement input and output device interfacing in IoT, including photoresistor (LDR) and servo motor, analog signals, PWM, and real-time cloud data monitoring via ThingSpeak.

Summary of the Day's Work

Today's session focused on analog input (LDR) detection, PWM control of servo motors, and sending real-time sensor and actuator data to ThingSpeak for cloud visualization.

Topics/Areas Covered:

- Overview of Photoresistor (LDR) and Light Detection.
- Basics of Interfacing Servo Motor with Arduino.
- Understanding Analog Input from LDRPWM (Pulse Width Modulation) for Servo Control.
- Sending LDR & Servo Data to ThingSpeak Cloud

Concepts Learned:

- LDR changes resistance based on light intensity.
- Arduino reads analog signals to measure light levels.
- Servo motor angle is controlled using PWM signals.
- Interfacing both sensor and actuator in one circuit.
- Data from LDR & servo can be uploaded to ThingSpeak using API key.

Tools / Platforms Used

- :Arduino UNO
- LDR Sensor
- Servo Motor
- ThingSpeak Cloud Platform
- Arduino IDE / Wokwi Simulator

Tasks Performed:

- **Task 1:** Detect light using photoresistor and send data to ThingSpeak.
- **Task 2:** Interface servo motor, control angle, and send updates to ThingSpeak.
- Observed output on ThingSpeak using HTTP response & graphs.

Observations / Reflections

Today's tasks helped me understand both input and output devices in IoT. Controlling the servo based on LDR readings and seeing the result on ThingSpeak felt like a real-world automation example.

Key Takeaways

- Learned practical circuit design for both sensor (input) and actuator (output) in IoT projects.
- Built confidence in uploading hardware signals to the cloud for analysis and monitoring.
- Understood usage of PWM and analog input in automation.