IRE 212 IoT Architecture Lab

Lab 1	Introduction to IoT, 4 stages of IoT Architecture, IoT Hardware, IoT Communication Protocols, basic concepts of Arduino Uno. Design a basic IoT system to demonstrate a street traffic light system.
Lab 2	Sensor Integration with Microcontroller: Interface a temperature and humidity sensor with an Arduino/Raspberry Pi and display the readings
Lab 3	Wireless Data Transmission using MQTT Protocol: Set up an MQTT broker and use it to send sensor data wirelessly from a microcontroller to a cloud server.
Lab 4	IoT Device Control via Mobile App: Create a mobile app to remotely control an LED connected to an IoT device using Bluetooth/Wi-Fi.
Lab 5	Implementing a Home Automation System: Develop a basic home automation system to control lights and appliances using IoT devices.
Lab 6	Real-Time Data Monitoring on a Web Dashboard: Stream real-time sensor data to a cloud platform and visualize it on a web dashboard.
Lab 7	Midterm Evaluation.
Week 8	Environmental Monitoring System using IoT: Build an IoT-based system to monitor environmental parameters like air quality, temperature, and humidity.
Lab 9	IoT-based Smart Parking System: Design a smart parking system that detects and notifies the availability of parking slots using sensors.
Lab 10	Security Surveillance System using IoT: Create an IoT-based security system with motion detection and alert notifications via email/SMS.

Lab 11	Energy Consumption Monitoring using Smart Meters: Implement an IoT system to monitor and report the energy consumption of household appliances in real-time.
Lab 12	Smart Irrigation System using IoT: To automate irrigation based on real-time soil moisture data using an IoT system.
Lab 13	IoT-Based Energy Monitoring System: To monitor the energy consumption of household devices and display real-time data on a dashboard.
Lab 14	Final Evaluation

- Distribution of Marks
  Class Attendance :10%
  Continuous Assessment :30%
  Mid-term Examination :24%
  Final Examination :36%
  Total :100%
- Continuous Assessment Marks
  Lab Performance :20%
  Lab Report :10%
  Total :30%