IoT Project Guidelines & Suggested Topics

Coursework Guidelines for IoT System Design

This document outlines the expectations for the IoT system design report that each student must complete as part of the IoT course. Students are required to select one project from the provided list and develop a theoretical system design using the structured methodology with five essential phases explained in "Lecture 06 - IoT Design Methodology".

Each student was assigned a project title, and in case a student needs to change the title either from the extra list or their own suggested subject, then he/she should take instructor's approval by email to avoid conflicts. The priority is for the 1st student who made the selection.

Structure of the Report

Your report should be organized under the following five sections:

1. Purpose & Requirements Specification:
   Define the objective of your system, its behavior, and operational goals. Include all relevant system, data, user interface, and security requirements.
2. Process Specification:
   Describe the operational flow and use cases that the system is designed to support.
3. Domain & Information Model:
   Present key entities, attributes, and relationships within your system. Define data inputs, outputs, and how components relate.
4. Service Specification:
   Define the core services the system offers, including inputs/outputs and triggers.
5. Application Design & Integration:
   Summarize the logical and physical architecture, device integration, and intended user interaction.

Submission Instructions

- The report should be 4 to 5 pages long, written in formal academic style.
- Use diagrams and pseudocode where applicable to illustrate your design.
- You may use Word or PDF format for submission.
- Collaboration on idea generation is allowed, but final reports must be individual and original. Each student should submit his/her own report.

Suggested IoT Project Topics

Vehicle-Based Projects

- Smart Traffic Light Detection and Stop System
- Auto Lane-Following Car System
- IoT-based Accident Alerting System
- Car Obstacle Detection and Avoidance
- Voice-Controlled Smart Car (using mobile app)
- RFID-Based Smart Parking System
- GPS-Based School Bus Tracker
- Alcohol Detection System for Vehicle Control
- Smart Car with Theft Alarm

Smart Home / Smart Campus

- Smart Gate Opener using RFID
- Automatic Garden Watering System
- Smart Light Control Using IR Sensor
- Temperature-Based Fan Controller
- Gas Leakage Detection with SMS Alert
- Fire Detection with Auto Emergency Alert
- Smart Waste Bin Alert System
- Classroom Noise Monitoring System
- Smart Doorbell with Camera
- Water Tank Level Monitoring System

Environmental Monitoring

- Weather Station using IoT Sensors
- Air Quality Monitoring System
- River/Lake Water Quality Detector
- UV Index Monitoring System
- Soil Moisture Monitor for Farmers

Security & Utility Systems

- Smart Attendance System with RFID
- Motion Detection Security System
- Asset Tracking Using GPS + IoT
- IoT-based Smart Electricity Monitoring
- Emergency Button Alert System for Students

Extra Vehicle-Based Projects

- Pollution Monitoring via Mobile Car
- Speed Violation Detection and Notification System
- Smart Headlight Control System
- Real-Time Tyre Pressure Monitoring System
- Car-to-Car Communication System (C2C)
- Smart Fuel Monitoring System
- Geo-Fenced Vehicle Control
- Smart Vehicle Insurance Monitoring (Black Box System)
- Automatic Number Plate Recognition (ANPR) Gate Entry
- Road Condition Monitoring Vehicle
- Emergency Vehicle Detection System at Intersections

#	Name	Project Title
1	Abdulbari Hawkar Smail	Automatic Garden Watering System
2	Ahmed Fouad Mamand	Smart Gate Opener using RFID
3	Amanj Jalal Rashed	Car Obstacle Detection and Avoidance
4	Aram Idrees Rashid	Gas Leakage Detection with SMS Alert
5	Avin Sabri Hasan	Emergency Button Alert System for Students
6	Awara Hemn Hasan	Asset Tracking Using GPS + IoT
7	Aya Soran Mohammed	Soil Moisture Monitor for Farmers
8	Bassam Raed Sahde	Weather Station using IoT Sensors
9	Blnd Jamel Sabri	RFID-Based Smart Parking System
10	Dadmand Mohammed Mustafa	Smart Waste Bin Alert System
11	Fenik Hussin Jumaa	Air Quality Monitoring System
12	Hedi Abdulrazzaq Abdullah	IoT-based Accident Alerting System
13	Hozan Saadi Mamand	Smart Light Control Using IR Sensor
14	Isra Khalid Mustafa	Motion Detection Security System
15	Kaywan Faruq Kamal	Classroom Noise Monitoring System
16	Malek Faisal Jawhar	Water Tank Level Monitoring System
17	Maryam Chawsheen Hasan	UV Index Monitoring System
18	Matin Guli	Alcohol Detection System for Vehicle Control
19	Muhammed Hamid Abd	Voice-Controlled Smart Car (using mobile app)
20	Rashed Basher Muhammed	GPS-Based School Bus Tracker
21	Rawan Ali Abdulhadi Mahmood	Smart Attendance System with RFID
22	Rawaz Aziz Asad	Smart Car with Theft Alarm
23	Rozhin Muhammad Mustafa	River/Lake Water Quality Detector
24	Sadiq Azad Sadiq	Fire Detection with Auto Emergency Alert
25	Sahar Fakher Muhammed	Smart Traffic Light Detection and Stop System
26	Sarwat Shukri Hamo	IoT-based Smart Electricity Monitoring
27	Yara Abdulkhaliq Jabbar	Temperature-Based Fan Controller
28	Zagros Ramzi Aziz	Smart Doorbell with Camera
29	Zakarya Dara Abdulkhaleq	Auto Lane-Following Car System