

PROJECT PROPOSAL Embedded System LAB



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**BAHRIA UNIVERSITY, (Karachi Campus)**

*Department of Software Engineering*

PROPOSAL

**Course Title:** Software Construction **Course Code**:

**Course Instructor:** Dr Qamar  **Class**: BSE-5(B)

**Lab Instructor:** Engr. Ismail  **Date: 04/12/2023**

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| ***PROJECT TITLE:***  **IOT BASED CAR PARKING SYSTEM** |
| ***GROUP MEMBERS LIST:***  **Aiman Zia Satti (02-131212-028)**  **Kanwal Shehzadi(02-131212-027)** |
| ***PROJECT SCOPE:***  The scope of this project encompasses the development and implementation of an IoT-based smart parking system using Arduino-based sensors. The system will leverage Arduino microcontroller units equipped with sensors in parking slots to detect vehicle presence. The data collected by these sensors will be transmitted to a centralized server for real-time processing. The primary goal is to enhance parking space utilization, reduce congestion, and provide users with a seamless parking experience. The project will include the design, construction, and deployment of the Arduino-based sensor infrastructure. |
| ***PROJECT ABSTRACT:***  This project introduces an innovative smart parking system employing Arduino-based sensors for efficient parking management. The system utilizes sensors placed in each parking slot to detect the presence of vehicles. These Arduino-equipped sensors transmit real-time data to a central server, which processes the information to determine parking space availability. The implementation aims to optimize parking resources, minimize traffic disruptions, and improve overall user convenience. A user-friendly interface, accessible via a dedicated mobile application or web platform, enables drivers to check parking space availability before arriving at their destination. |
| ***PROJECT FUNCTIONALITIES:***   * **VEHICLE PRESENCE DETECTION:** * Arduino-based sensors in each parking slot will detect the presence of a vehicle. * **AUTOMATED BARRIER SYSTEM:** * Implement an automated barrier system that opens only if parking spaces are available; otherwise, it remains closed. * **CHECK AVAILABLE PARKING SPACES:** * Users can check the real-time availability of parking spaces through the mobile application or web interface. * **ENERGY EFFICIENCY:** * Optimize energy consumption of the Arduino sensors to ensure sustainable and cost-effective operation. |
| ***CONCLUSION:***  In conclusion, the IoT-based smart parking system utilizing Arduino sensors offers a robust solution for urban parking challenges. With real-time data processing, user-friendly interfaces, and automated functionalities, the system aims to optimize parking resources and enhance the overall user experience. Its scalability, security features, and integration possibilities position it as a pivotal tool in shaping smarter and more efficient urban landscapes. |

**Teacher Signature**: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Remarks**: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Submission Date**: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_