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**BAHRIA UNIVERSITY, (Karachi Campus)**

*Department of Software Engineering*

PROPOSAL

**Course Title:** Embedded System  **Course Code**: CEN-439

**Course Instructor:** Muhammad Ismail Mansoor **Class**: BSE- (5B)

**Lab Instructor:** Qamaruddin Memon  **Name:** Muhammad Shoaib Akhter Qadri

PROJECT TITLE:

**The Smart Light**

GROUP MEMBERS LIST

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Submission Date**: 28/12/2023**

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# **INTRODUCTION:**

The "Smart Light" project aims to enhance energy efficiency and automation in lighting systems. Leveraging technologies such as Light Dependent Resistor (LDR), Relay, and Arduino Uno, the project addresses the need for adaptive lighting based on ambient light conditions. The system ensures that the bulb is activated in low light situations and deactivated when sufficient natural light is available.

# **PROJECT SCOPE:**

The scope of the project encompasses the development of an intelligent lighting solution that responds dynamically to changes in ambient light. The system will be designed to operate in various settings, including indoor environments and outdoor scenarios such as smart street lighting. The flexibility of the project allows for integration with different types of bulbs, making it a versatile solution for energy-conscious applications.

# **PROJECT ABSTRACT:**

The "Smart Light" project introduces a responsive lighting system using an Arduino Uno microcontroller, LDR, and Relay. The system detects changes in ambient light levels through the LDR sensor and triggers the relay to control the bulb. This intelligent control mechanism ensures that the light source is activated during periods of darkness and deactivated during daylight, contributing to energy savings and environmental sustainability.

# **PROJECT FUNCTIONALITIES:**

# **Light Sensing:**

# The LDR sensor detects changes in ambient light conditions

# **Decision Making:**

# The Arduino Uno processes sensor data and determines whether the light should be turned on or off.

# **Relay Control:**

# The Arduino, based on its decision, controls the relay to either connect or disconnect the power supply to the bulb.

# **Adaptive Lighting:**

# The system provides adaptive lighting, promoting energy efficiency by utilizing artificial light only when necessary.

# **PROJECT TECHNOLOGY:**

# **Arduino Uno:**

# Serves as the central processing unit for the project, receiving input from the LDR sensor and controlling the relay.

# **LDR (Light Dependent Resistor):**

# Acts as the sensor to detect changes in ambient light.

# **Relay:**

# Controls the electrical circuit to turn the bulb on or off based on the Arduino's decision.

# **MODULE DISTRIBUTION:**

* **Muhammad Shoaib Akhter Qadri:**

He is working on whole project with above functionalities. He is responsible for working on hardware and software. He is working to run projects by using light.

# **Conclusion:**

The "Smart Light" project showcases a practical application of smart technology in everyday scenarios. By harnessing the power of sensors and microcontrollers, the system provides an energy-efficient solution for lighting. The adaptive nature of the project not only contributes to reducing electricity consumption but also aligns with the broader goals of smart and sustainable living. As technology continues to evolve, the integration of intelligent systems in our daily lives becomes increasingly essential for a greener and more efficient future.

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

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

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