LIFI BASED SENSORS DATA MONITORING SYSTEM

AIM:

Design and development of LIFI based sensors data monitoring system.

PURPOSE:

LIFI is Light based wireless communication and can transmit both data audio signals. LIFI is under developing stage and it has limitless applications. Other wireless communications like RF, Zigbee, WIFI are working under radio waves. LIFI doesn't involve in radio waves. It uses light as source of communication. Using LIFI we will implement LIFI based sensors data monitoring system using Arduino.

DESCRIPTION:

Arduino interfaced with LIFI module through UART communication. LM35, MQ2 and IR sensors are connected to Arduino analog and digital pins respectively. Other side of LIFI module connected to PC or laptop serial port.

WORKING:

Here there are two LIFI sections. LIFI transmitter has sensors and LED light. Arduino sends all sensors data to LIFI module through serial port. LIFI converts digital data into light format and sends through LED array. At LIFI receiver solar panel receives data and signals will be amplified by LIFI module. Also it sends all sensors data to PC through UART port. We can monitor sensors data in PC through LIFI wireless communication.

TECHNICAL SPECIFICATIONS:

HARDWARE:

Microcontroller   :   Arduino Uno

Crystal   :   16 MHz

LCD   :   16X2 LCD

LIFI Module   :   UART based LIFI module

Smoke sensor   :   MQ series

IR sensor   :   5V DC

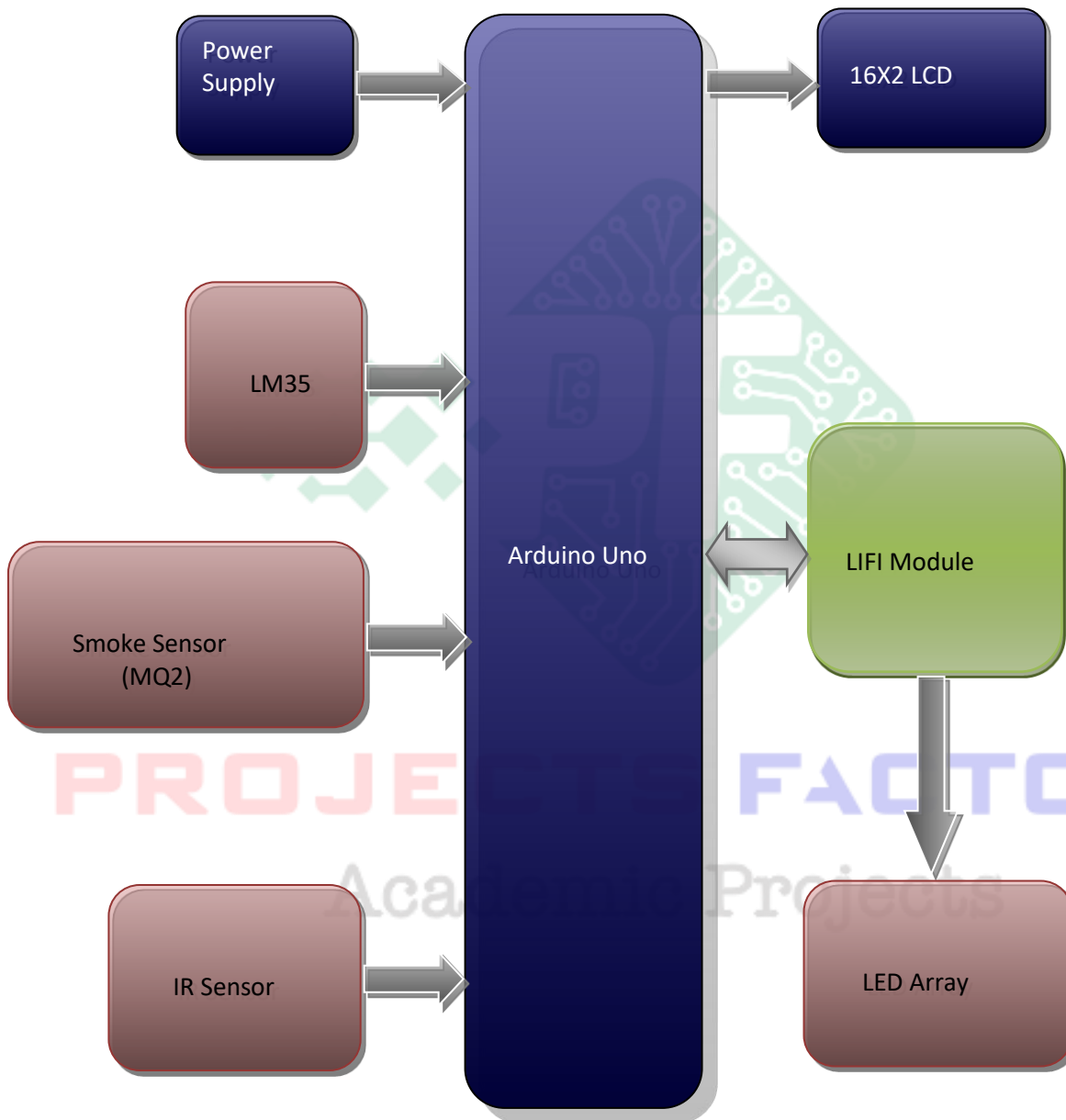Temperature sensor   :   LM35

Power Source   :   12v 1 amp DC battery
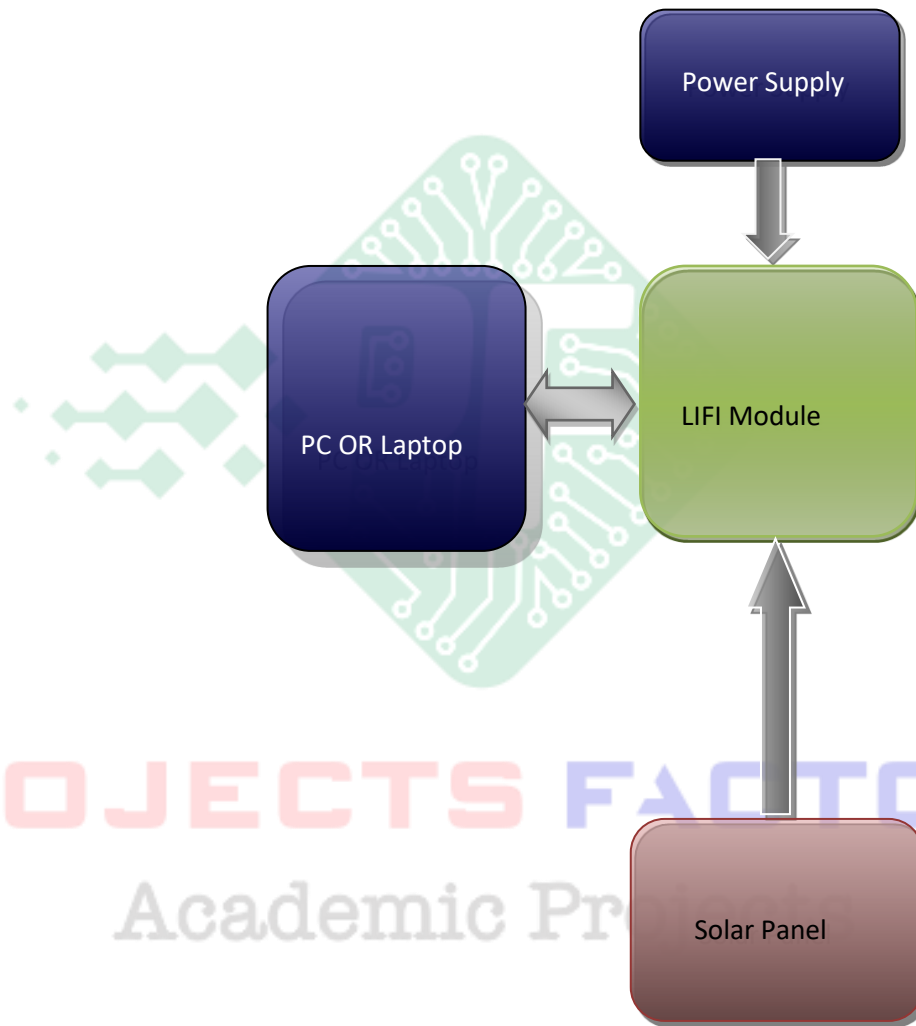
SOFTWARE:

Arduino IDE

Proteus based circuit diagram

APPLICATIONS:

- ➢ Data Logger
- ➢ Sensors wireless communication
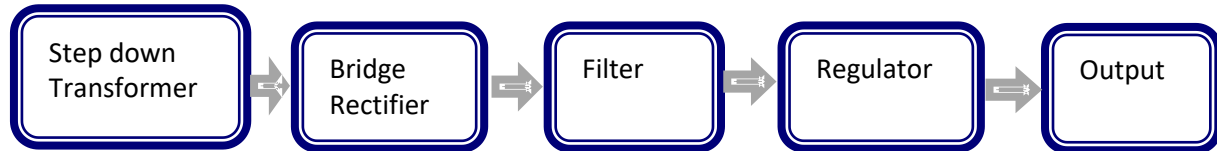- ➢ LIFI based projects
- ➢ LIFI communication

BLOCK DIAGRAM:

Transmitter Section:

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Power Supply ──→ Arduino Uno ──→ 16X2 LCD

LM35 ──→ Arduino Uno

Smoke Sensor (MQ2) ──→ Arduino Uno

Arduino Uno ⟷ LIFI Module

LIFI Module ──→ LED Array

IR Sensor ──→ Arduino Uno
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Receiver Section:

POWER SUPPLY BLOCKDIAGRAM:

Step down Transformer → Bridge Rectifier → Filter → Regulator → Output

INTERFACES COVERD:

- We have covered LIFI module interfacing
- Sensors Like LM35, Smoke and IR sensor