LIFI BASED HIGHWAY NAVIGATION SYSTEM

AIM:

Design and development of LIFI based highway navigation system.

PURPOSE:

There are various technologies growing rapidly around us day by day. But converting them into real-time applications and using for our daily needs is more important. LIFI is upcoming technology and implementing by various universities and individual to bring it to next level. Here we want to use it for high way navigation that can provide lighting system as like streetlight and transmit navigation information like road number, name and many more information. Project name is LIFI based highway navigation using Arduino.

DESCRIPTION:

In this project we are using Arduino as a microcontroller and can drive entire system. Arduino has communication with LIFI module through serial port. Both can communicate through serial port. LIFI module has divided into two parts. One is transmitter and other one is receiver. LIFI transmitter has driver and LED light array. LIFI Receiver has driver and Solar panel.

WORKING:

Each LIFI transmitter section works as Like Street light. Here we are using two LIFI transmitters, which can send highway navigation information and provides lighting. LIFI receiver section placed on vehicle and can receive LIFI signals from each light. Information displayed on LCD. Based on this information driver can take next moment easily. This project makes highway navigation easy and effective.

TECHNICAL SPECIFICATIONS:

HARDWARE:

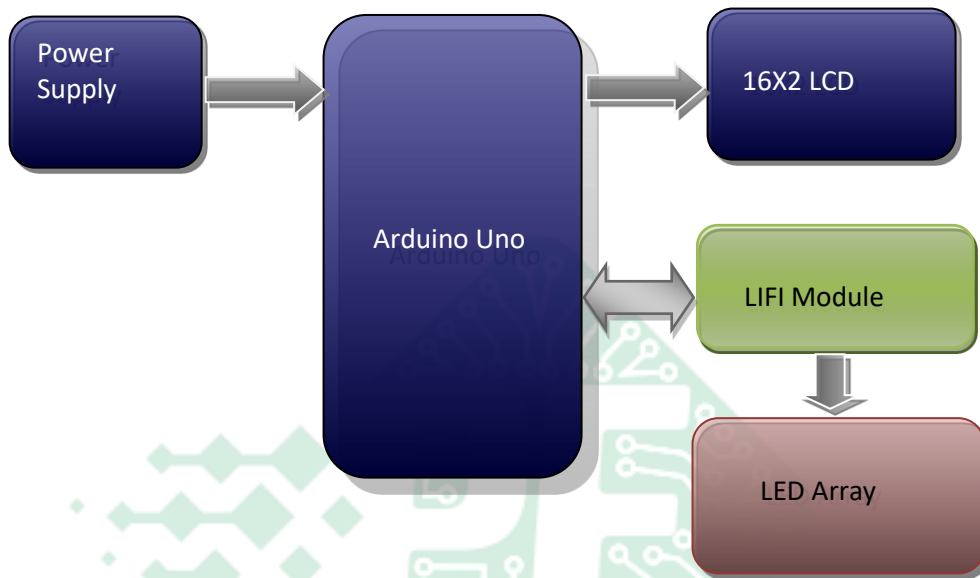|		
Microcontroller	:	Arduino Uno
Crystal	:	16 MHz
LCD	:	16X2 LCD
LIFI Module	:	UART based LIFI module
Power Source	:	12v 1 amp DC battery

SOFTWARE:

Arduino IDE
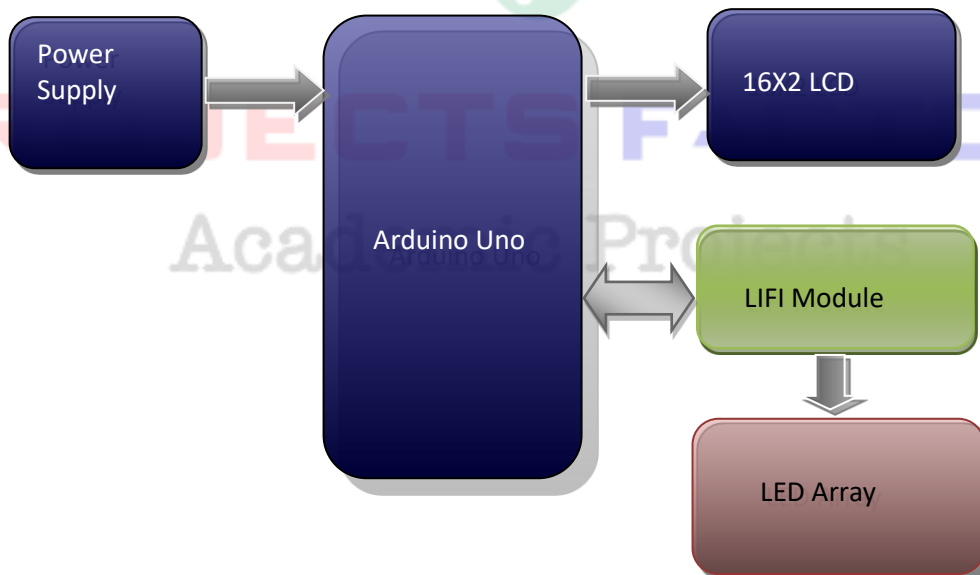
Proteus based circuit diagram

APPLICATIONS:

➢ Space application sensors data monitoring

➢ Smart Highway Navigation

➢ Wireless navigation monitoring

➢ LIFI based advanced applications
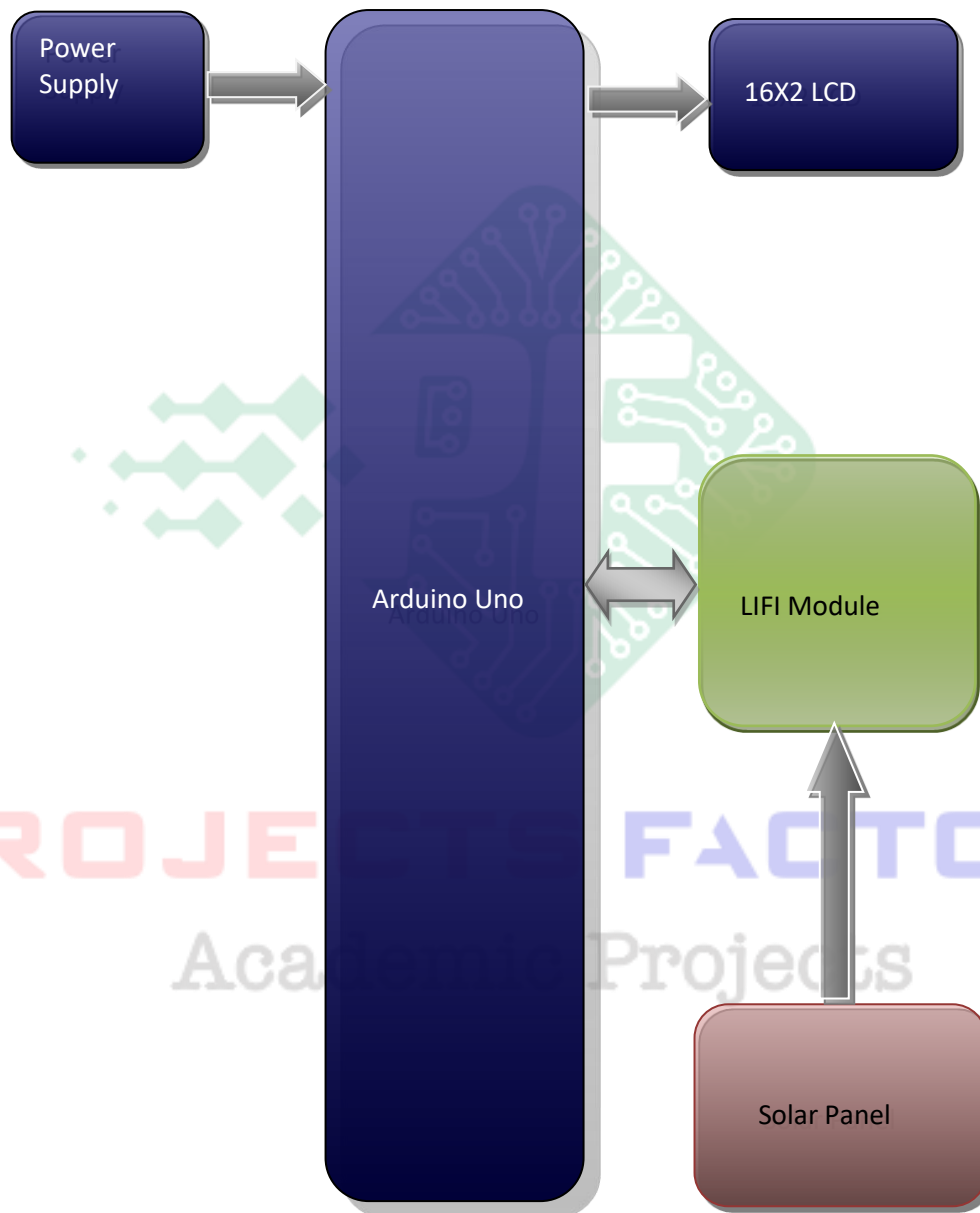
➢ Light Fidelity Technology
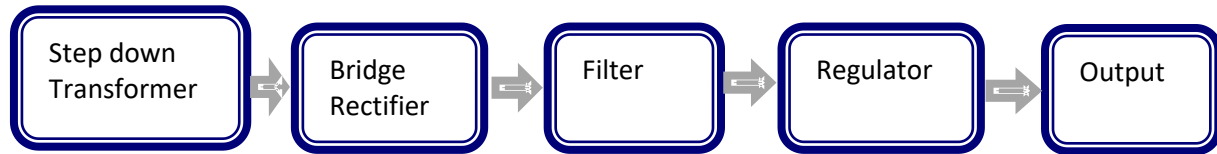
BLOCK DIAGRAM:

Light1 (Transmitter-1):

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Power Supply  →  Arduino Uno  →  16X2 LCD
                 Arduino Uno  ↔  LIFI Module  →  LED Array
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Light2 (Transmitter-2):

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Power Supply  →  Arduino Uno  →  16X2 LCD
                 Arduino Uno  ↔  LIFI Module  →  LED Array
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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
- Arduino interfacing with LIFI module