

LIFI BASED PARAMETERS MONITORING SYSTEM FOR SPACE APPLICATION

AIM:

Design and development of LIFI based parameters monitoring system for space applications.

PURPOSE:

Technology advancements are needed for space applications. So many parameters consider for space programs. Especially for space parameters monitoring like temperature, humidity, pressure and solar irradiation are mandatory for existence in space. Reading of these kind of parameters are displaying is complex task in space because wire communication not allowed in few cases. Because of wire communication, normal wires are more weight to carry satellites into orbit. Other wireless communications available but little bit expensive than LIFI. Here our idea is to replace regular communications with LIFI. This kind of communication will helps like satellite to satellite communication or space station to satellite when they are closer. Project title is LIFI based parameters monitoring system for space application.

DESCRIPTION:

Arduino communicates with LIFI module through UART communication. DHT11 sensor connected to Arduino digital pin. BMP280 connected to Arduino I2C pins. Solar irradiation sensor interface to Arduino Analog pin.

WORKING:

At transmitter side Arduino reads all sensors data and send them to LIFI transmitter. LIFI transmitter converts data into light format and transmits in light format. LIFI receiver receives data and converts into text format and displaying on LCD display.

TECHNICAL SPECIFICATIONS:

HARDWARE:

Microcontroller	:	Arduino Uno
Crystal	:	16 MHz
LCD	:	16X2 LCD
LIFI Module	:	UART based LIFI module
Temperature Sensor	:	DHT11
Humidity Sensor	:	DHT11
Atmospheric Pressure	:	BMP280
Solar Irradiation	:	Solar panel based sensor
Power Source	:	12v 1 amp DC battery

SOFTWARE:

Arduino IDE

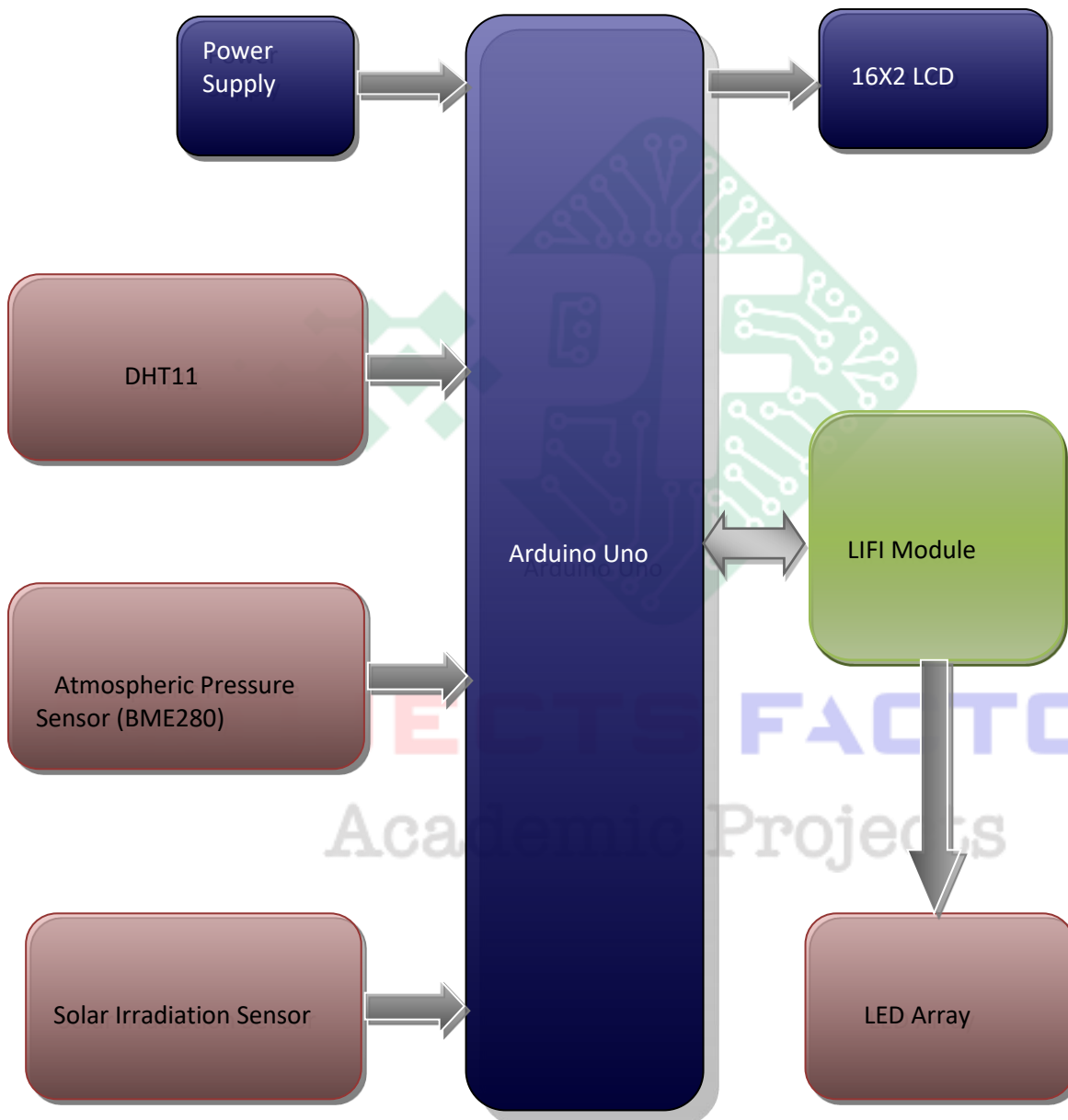
Proteus based circuit diagram

APPLICATIONS:

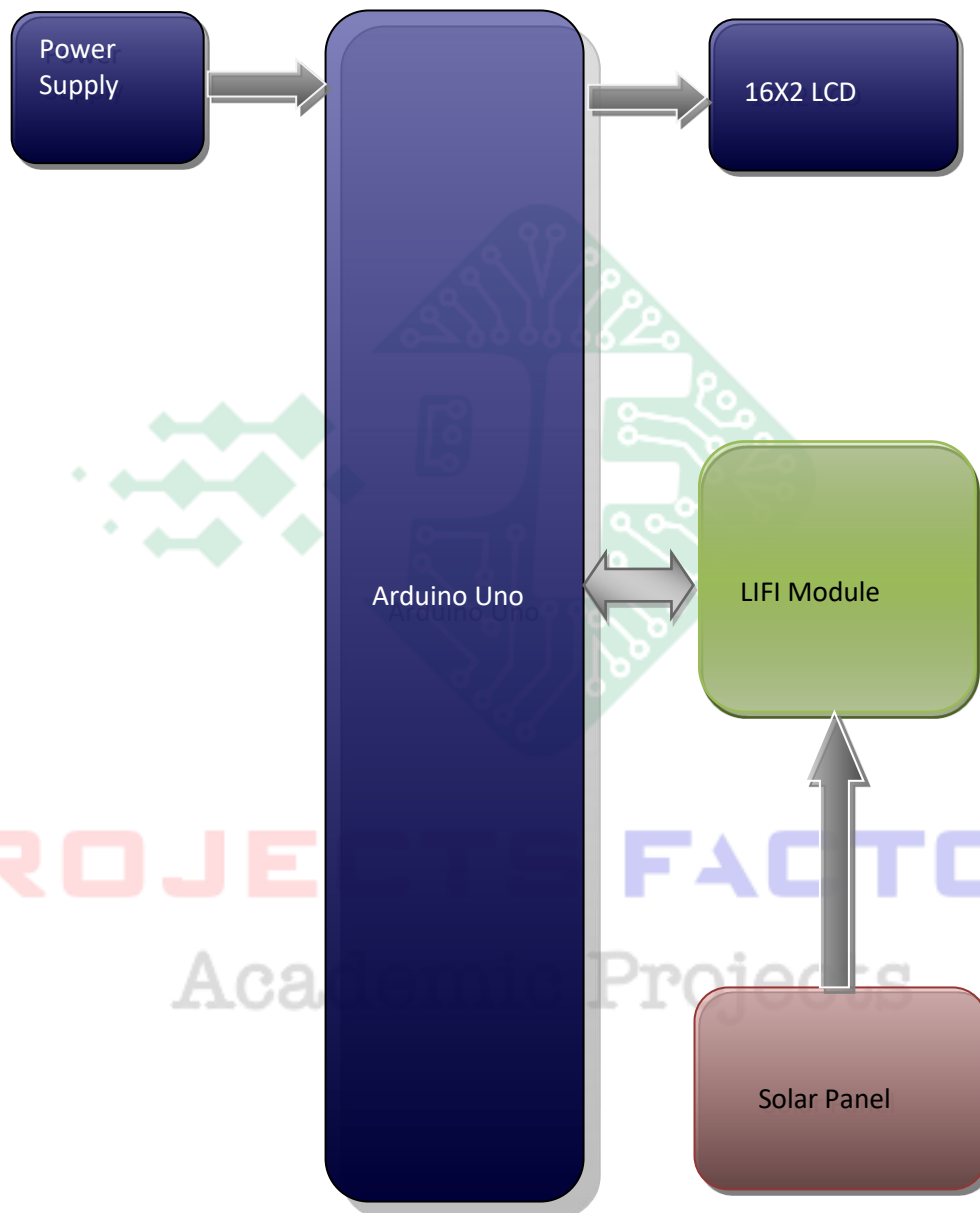
- Space application sensors data monitoring
- LIFI based sensors logger
- LIFI based sensors monitoring
- LIFI based applications
- LIFI based projects

BLOCK DIAGRAM:

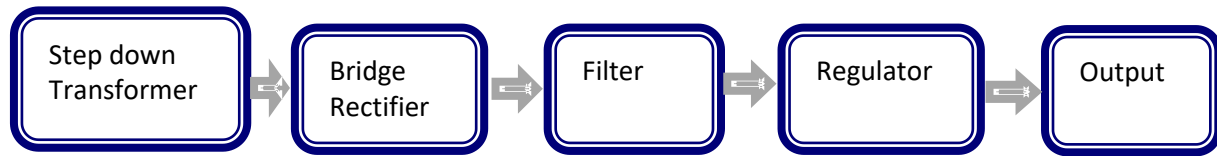
Transmitter Section:



Receiver Section:



POWER SUPPLY BLOCKDIAGRAM:



INTERFACES COVERED:

- We have covered LIFI module interfacing
- Sensors Like BMP280, DHT11 and Solar Irradiation interfacing



PROJECTS FACTORY
Academic Projects