RASPBERRY PI PICO BASED AIR AND SOUND POLLUTION USING IOT

AIM:

Design and Development of Raspberry pi PICO based Air and Sound Pollution using IOT.

PURPOSE:

Pollution becomes major problem in now days. In these recent year's pollution rate increased rapidly. There are several methods to control pollution like minimizing carbon emission and converting industries from fossil fuel to solar and wind. To do this, first we have to know location based pollution monitoring. Using this we can know pollution levels of various places. We can take actions or remedies immediately at places where pollution percentage is more. Here we take IOT technology to get data into cloud. Using cloud IOT server various locations pollution data will be available in single place. Proposed project title is raspberry pi pico based air and sound pollution using IOT.

DESCRIPTION:

IOT module (esp8266) connected to raspberry pi Pico through serial port. ADC based Sound, DHT11 and MQ135sensors are connected to analog and digital pins of pi Pico. Two LEDs connected to Pi Pico digital pins.

WORKING:

Here we used mq135 for pollution measuring purpose. It can measure air quality. It has analog output and connected to analog pin of raspberry pi pico. DHT11 sensor can measure temperature and humidity and it works on one wire protocol. MIC based sound sensor has analog output and when noise level (sound level) increases then analog output voltage will increase. This voltage read by pi pico and converts voltage into noise level values. Pico displays all these sensors data on 16x2 LCD

display. Also it sends sensors data to IOT server. Data will be visible in table format as well in graph format.

TECHNICAL SPECIFICATIONS:

HARDWARE:

Microcontroller	:	Raspberry pi pico
LCD	:	16X2 LCD
IOT module	:	ESP8266
Temp Sensor	:	DHT11
Humidity Sensor	:	DHT11
Air quality sensor	:	MQ135
Sound sensor	:	ADC Mic with amplifier circuit
LEDs	:	Red and Green LED
Power Source	:	12v 1 amp DC Adaptor

SOFTWARE:

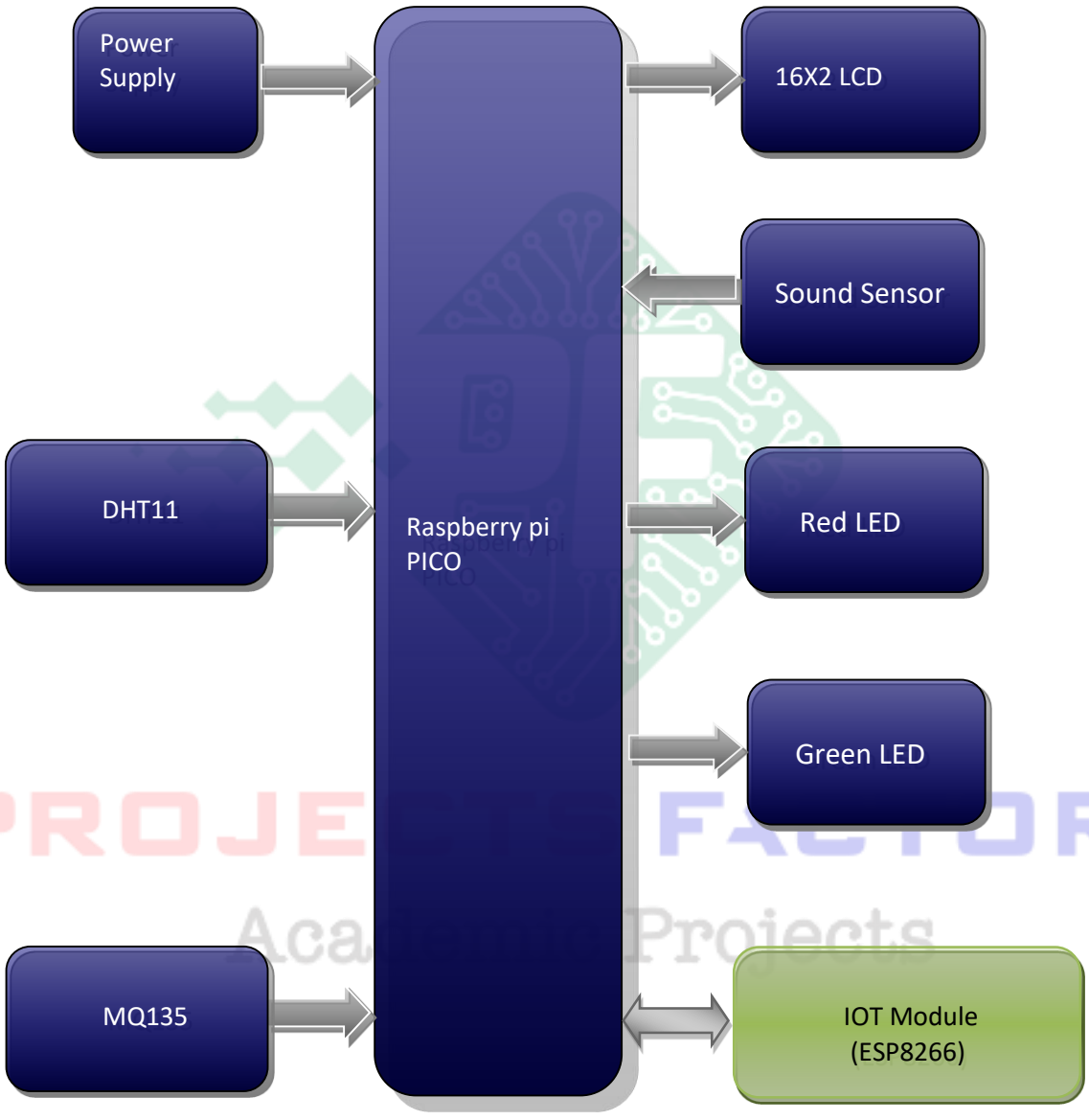
Arduino IDE

Proteus based circuit diagram

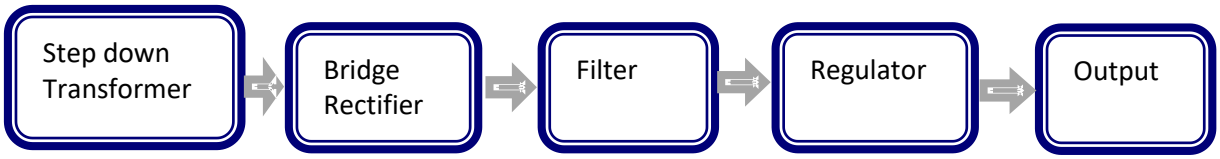
APPLICATIONS:

- IOT pollution monitoring
- Cloud based pollution monitoring
- Pollution monitoring applications
- Sensors data logger

BLOCK DIAGRAM:



POWER SUPPLY BLOCKDIAGRAM:



INTERFACES COVERD:

- We have covered raspberry pi Pico programming and IOT module (ESP8266)
- Sensors like DHT11, mq135 and sound sensors