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SMART GREEN ENVIRONMENT USING IoT

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Abstract -This paper describes the measurement of various physical parameters like temperature, Co_2 gas, humidity. It measures the amount of Co2 that is emitted from the industries with temperature and humidity so as to save the environment from getting polluted. This paper majorly concentrates in conserving the environment from the gas emissions since those emissions leads to harmful effects. So this paper deals with the measurement of Co2 which gets recorded in the webpage that is created for this application when the amount of Co2 increases. This would help the environment from getting polluted

Key Words:Sensors, Arduino, IoT Module

1.INTRODUCTION *(Size 11, Times New roman)*

The IoT is an integrated communication technology, in which the objects are connected anyplace, anytime. It uses intelligent interfaces to attach and communicate with sensors, and device. The IoT development provides numerous applications on different domains, such as consumer, home, industrial, manufacturing, utilities, energy resources, transportation, environment, safety, security, and many others. Air Pollution has surfaced globally as a result of eruptive industrial growth. Transportation by road is also one of the major causes for air pollution, which contribute to weather change that has hazardous domestic and global consequences. Present revolution in the technology mainly focuses and monitoring of different activities. These are increasingly emerging to reach the human needs. The most vulnerable global challenges faced today re of greenhouse effect and its impact on climate with deteriorating air quality. Air pollution is increasing and causing global warming, increase in sea level, change in seasonal patterns, rainfall pattern, extreme summer and winter temperatures, droughts and floods, etc. An efficient monitoring system is required to monitor and assess the conditions in case of exceeding the prescribed level of parameters (e.g., smoke). The extent to which environment gets affected is noted and intimated to the user through the mobile application.

2.BLOCK DIAGRAM

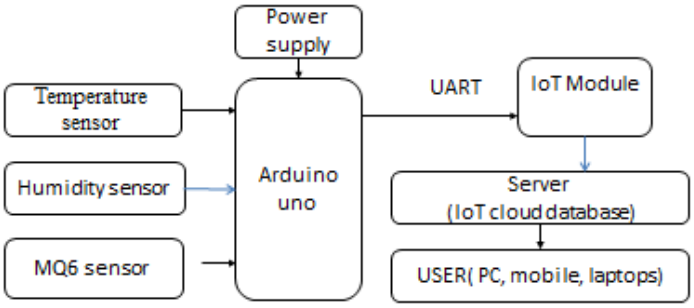

Fig -1:Functional Block Diagram

In this proposed system we are using co2 sensor to monitoring air quality.In this proposed system IoT board is used to monitor the parameters with time and date 24/7 hours.This system embedded with arduino micro-controller. This controller have less number of instruction sets. The micro-controller is cost effective, easy to handling and understandable programming language.

3.TEMPERATURE SENSOR

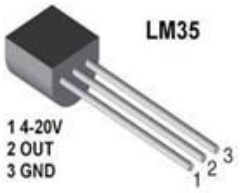

Fig -2:Temperature Sensor

The LM35 device does not require any external calibration or trimming to provide typical accuracy. You can measure temperature more accurately than a using a thermistor. The LM35 series are precision integrated-

circuit temperature devices with an output voltage linearly-proportional to the Centigrade temperature. The LM35 device has an advantage over linear temperature sensors calibrated in Kelvin, as the user is not required to subtract a large constant voltage from the output to obtain convenient Centigrade scaling.

4.HUMIDITY SENSOR

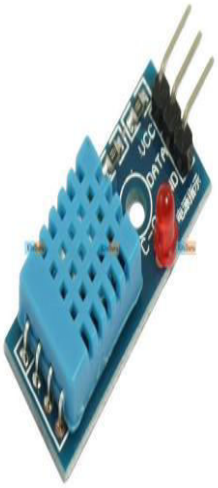

Fig -3:Humidity Sensor

This module is based on HR202 resistive humidity sensor, which exposes excellent linearity, has a wide measurement range and a low power consumption. The module features both a power output indicator LED and a digital output indicator .The output is available both as an analog output and as a digital output obtained using a comparator based on LM393 integrated circuitThis module is ideal for custom humidity sensing applications, and can be used in fields like meteorology, storage facility humidity control, textile industry and other applications which need ambient humidity monitoring.

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5.MQ6 SENSOR

Fig -4:MQ6 sensor

This gas sensor is suitable for detecting gas concentration on your breath, just like your common breathalyzer. It has a high sensitivity and fast response time. Sensor provides an analog resistive output based on alcohol concentration. The drive circuit is very simple, all it needs is one resistor. A simple interface could be a 0-3.3V ADC.Due to its high sensitivity and fast response time, measurements can be taken as soon as possible. The sensitivity of the sensor can be adjusted by using the potentiometer. This alcohol sensor is suitable for detecting alcohol concentration on your breath, just like your common breathalyzer. It has a high sensitivity and fast response time. This sensor has selective digital or analog output capability which can be measured easily with SPDuino or any other microcontroller provides direct interface for such sensor

6.ARDUINO UNO

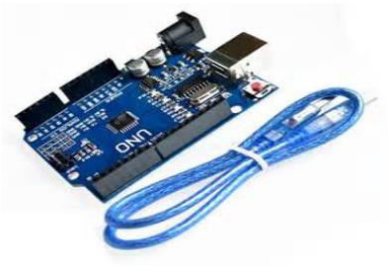

Fig -5: Arduino Uno

This is the new Arduino Uno R3. In addition to all the features of the previous board, the Uno now uses an ATmega16U2.This allows for faster transfer rates and more memory.The Uno R3 also adds SDA and SCL pins next to the AREF. In addition, there are two new pins placed near the RESET pin. The other is a not connected and is reserved for future purposes. The Uno R3 works with all existing shields but can adapt to new shields which use these additional pins.

7. NODE MCU

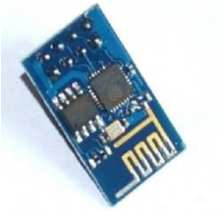

Fig -6 NODE MCU

NODE MCU offers a complete and self-contained Wi-Fi networking solution, allowing it to either host the application or to offload all Wi-Fi networking functions from another application processor. When NODE MCU hosts the application, and when it is the only application processor in the device, it is able to boot up directly from an external flash. It has integrated cache to improve the performance of the system in such applications, and to minimize the memory requirements. Alternately, serving as a Wi-Fi adapter, wireless internet access can be added to any microcontroller-based design with simple connectivity through UART interface or the CPU AHB bridge interface.

8.HARDWARE IMPLEMENTATION

In this project we are progressing to make an IoT Based pollution Monitoring System within which we are going to monitor the Air Quality over a webserver using internet and will trigger a alarm when the air quality goes down beyond an exact level, means when there are sufficient amount of harmful gases are present within air like CO2, smoke, alcohol, benzene and NH3. it will show the air quality in PPM on webpage so we are able to monitor it very easily. we've got built the LPG detector using MQ6 sensor and Smoke detector using MQ2 sensor Quality because it can detects most harmful gases and might measure their amount accurately. during this IOT project, you'll monitor the pollution level from anywhere using your computer or mobile. we are able to install this method anywhere . when pollution goes beyond some level can send alert SMS/mail to the user.

9. CONCLUSION

The display utilizes public transportation to gather pollutant gases like CO, smoke. The data shows the pollutant levels and their local air quality standards. Here successfully designed the pollution monitoring system which shows the real time air pollution data on web page which can be accessible from anywhere within the network range. The data's that are collected by the sensors may well be utilized by the administrators to require necessary action like emergency warning messages and evacuation of individuals to snug places. Further implementing contamination monitoring systems will help todetermine supplementary pollution. Based on the past stored records, we can predict the future pollution level.

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