IoT Based Environmental Monitoring System

A Project report submitted in partial fulfilment
of the requirements for the degree of B.E in
Computer Science and Engineering

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Environmental Monitoring

- Problem Statement
- Design Thinking Approach

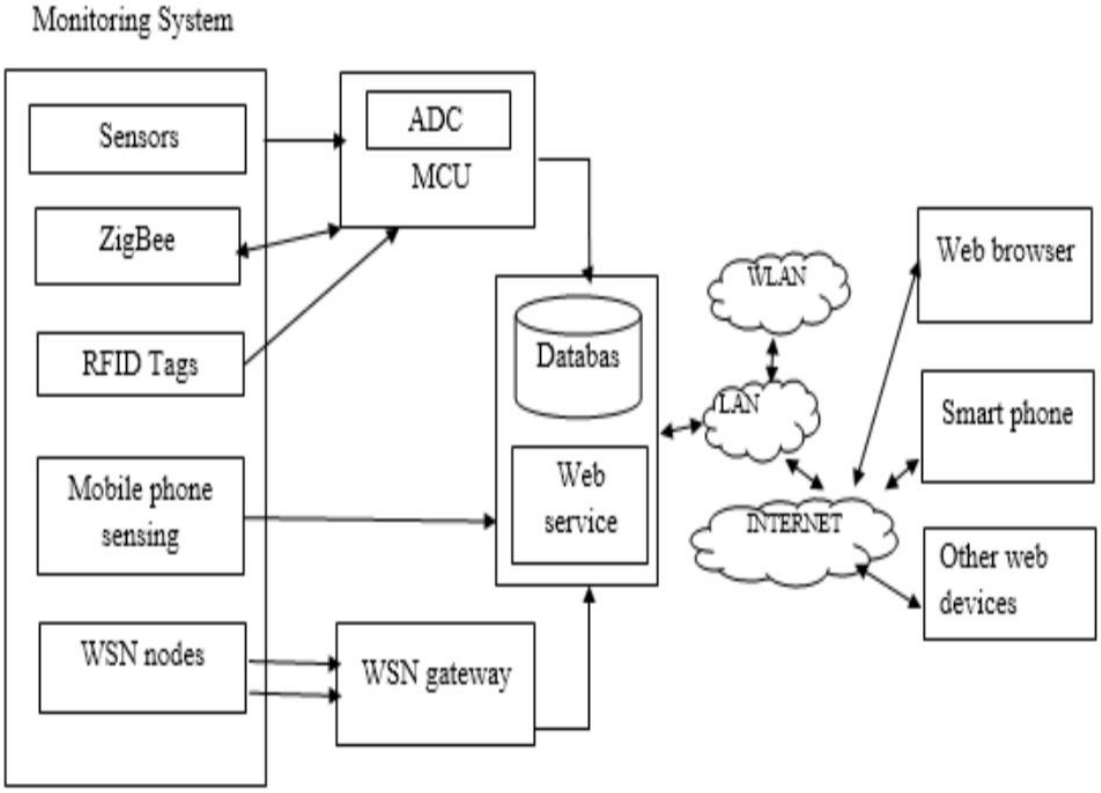
History of IOT Based Monitoring System

IOT is newly developed technology in which the connectivity between physical objects along with controllers, actuators and sensors synchronized over an Internet. IOT able to provide means to monitor the quality of parameters like Air, Noise, Temperature, Humidity and Light.

It helps concern authorities to take action against pollution crossing beyond defined level.

Problem Statement:

- Due to miscellaneous interactions, limited protocol standardization, security of data storage and complex identification systems to access data, problems arises in field of monitoring hence to overcome these problems we are designing, ‘ IOT based environmental pollution monitoring system’, to gain pollution free future live.



- Arduino UNO is a microcontroller board based on ATmega328. It has 14 digital input/output pins of which 6 can be used as PWM output, 6 analog inputs.

- ESP8266 is an UART to Wi-Fi module, a really cheap and easy way to connect any small microcontroller platform having network connectivity is good for any computing system.

- This is a simple-to-use Carbon Monoxide (CO) sensor, suitable for sensing CO concentrations in the air. The MQ-7 can detect CO-gas concentrations anywhere from 20 to 2000ppm.

- The sound sensor module detects sound and its intensity. It uses a microphone which supplies the input to an amplifier, peak detector and buffer.

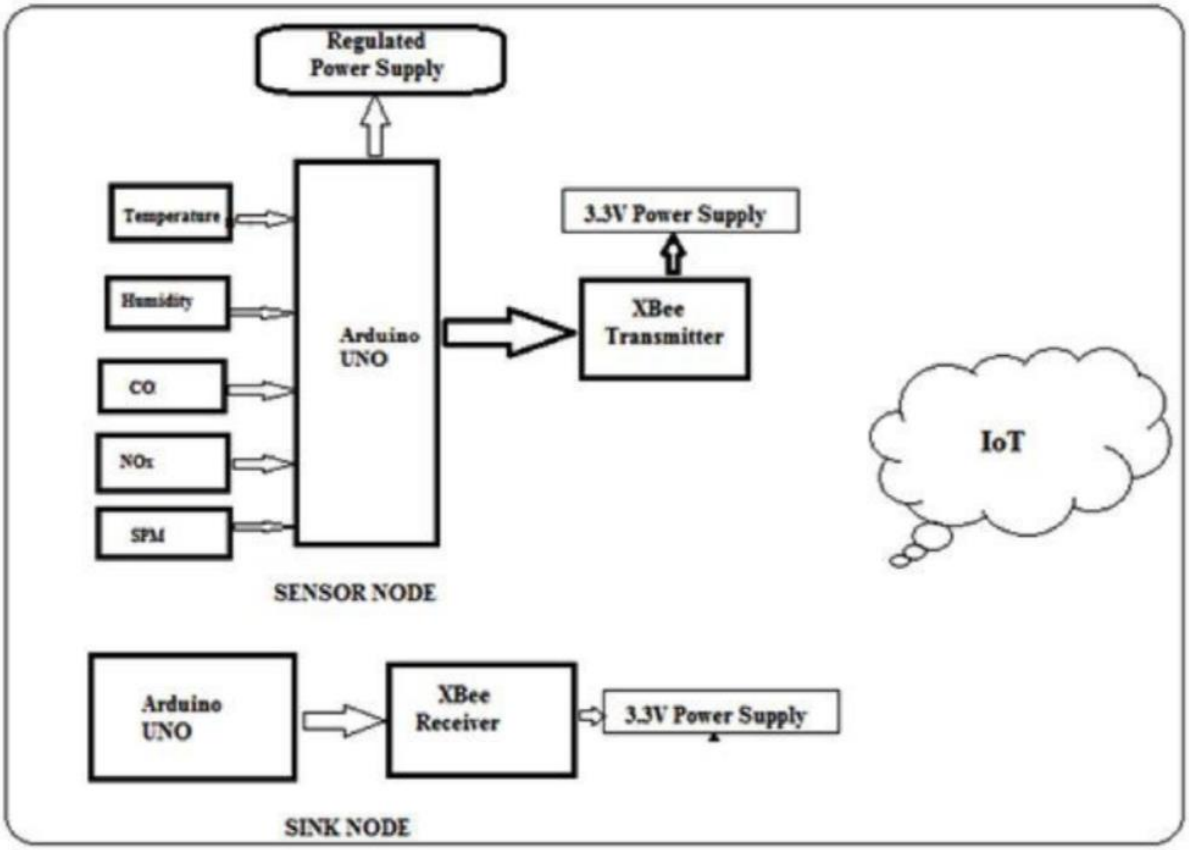
- The LM35 series are precision integrated-circuit temperature sensors, whose output voltage is linearly proportional to the Celsius (Centigrade) temperature.

- This sensor module converts relative humidity (30-90%RH) to voltage and can be used in weather monitoring application. Operates at DC 5V.

- LDR sensor module is used to detect the intensity of light. It is associated with both analog output pin and digital output pin labelled as AO and DO respectively on the board.

Design Thinking Approach

- Detailed concentration distributions and temporal variations of H2S for Pollution detection and source identification were given by the Gaussian puff model, referring to the guideline models for Environmental risk assessment.



- The source area analysis method was employed to perform the Source identification. It provides an approach to obtain the source Area by means of meteorological data and concentration Measurements.

- Avoid burning leaves, trash, and other Materials Reduce the number of trips you take in your car. Reduce or eliminate fireplace.

- In order for air pollution-related health information to lead to behavior change, Continuous and specific support is needed from village apparatus and health Cadres within the communities.