IDEATION PHASE

IDEATION

TEAM ID	PNT2022TMID42660
PROJECT TITLE	Real Time River Water Quality Monitoring and Control System

Introduction:

The main aim is to develop a system for continuous monitoring of river water quality at remote places using wireless sensor networks with low power consumption, low-cost and high detection accuracy. pH, conductivity, turbidity level, etc.

Over the past few years, IoT has become one of the most important technologies of the 21st century. Now that we can connect everyday objects kitchen appliances, cars, thermostats, baby monitors,to the internet via embedded devices, seamless communication is possible between people, processes, and things.

Though IoT is still under applied in the field of environment it has huge potential. It can be applied to detect forest fire and early earthquake, reduce air population, monitor snow level, prevent landslide, and avalanche etc. Moreover, it can be implemented in the field of water quality monitoring and controlling system.

Ideation phase:

The main aim is to develop a system for continuous monitoring of river water quality at remote places using wireless sensor networks with low power consumption, low-cost andhigh detection accuracy. pH, conductivity, turbidity level,

etc. are the limits that are analysed to improve the water quality. Following are the aims of idea implementation.

a) To measure water parameters such as pH, dissolved oxygen, turbidity, conductivity,etc.

b) using available sensors at a remote place.

c) To assemble data from various sensor nodes and send it to the base station

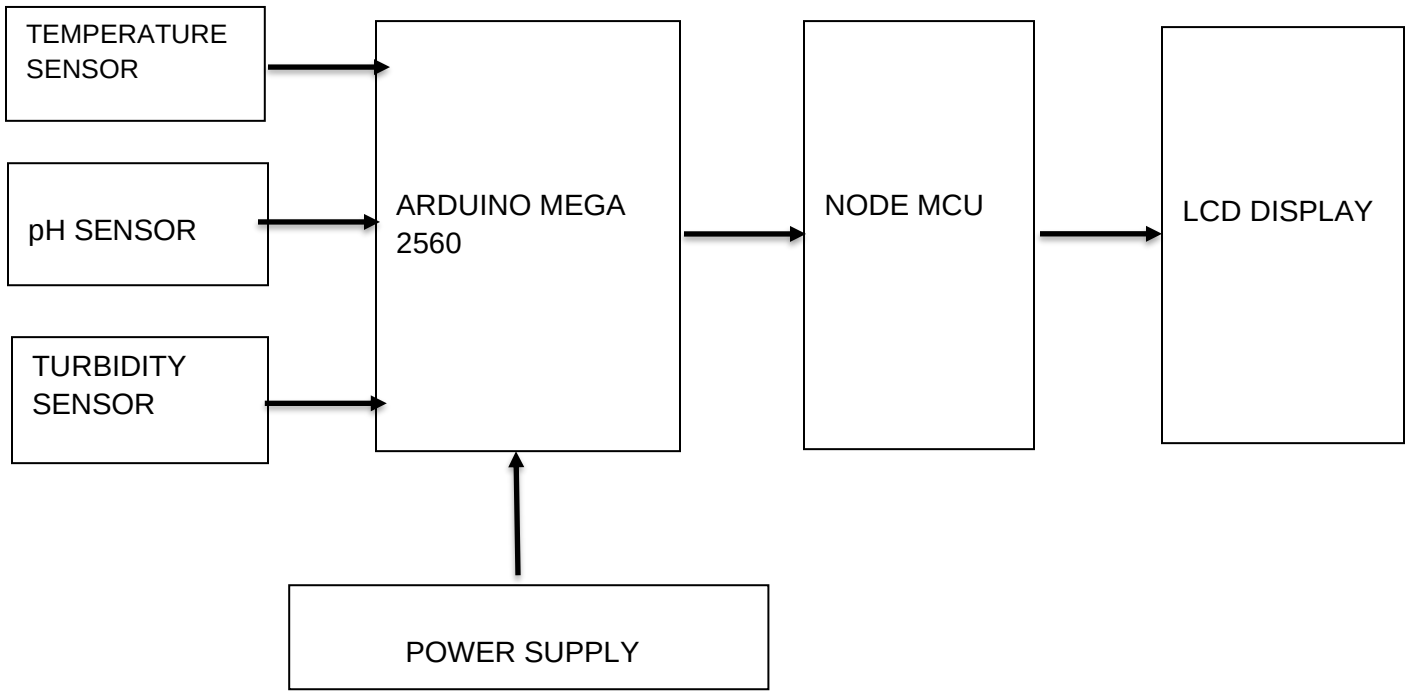
d) wireless channel.

e) To simulate and evaluate quality parameters for quality control.

f) To send SMS to an authorized person routinely when water quality detected.

g) match the present standards, so that, necessary actions can be taken.

BLOCK DIAGRAM:



COMPONENTS REQUIRED

S NO	COMPONENT	QUANTITY	AMOUNT
1	Arduino Mega 2560	1	1350
2	Turbidity Sensor	1	750
3	PH Sensor	1	500
4	Temperature Sensor	1	350
5	LCD Display	1	250
6	WiFi module	1	390
Total			3590

CONTROL SURFACE:

An Arduino mega is used. The Arduino used here is Mega2560

Because multiple analog sign sensors probe requisite to be conterminous with the Arduino in habit. It has a set of registers that used as a solon use RAM.

pH SENSOR:

The pH value lies between range 0 to 14. A pH sensor is an Instrumentation that measures hydrogen-ion density in a bleach, indicating its tartness or alkalinity.

TURBIDITY SENSOR

A turbidity sensor is used to measure the clarity of element or muddiness present in the water. The turbidity device consists of soft sender and acquirer, the transmitter needs to transmit unsubtle bright, it is said to be turbid.

TEMPERATURE SENSOR

A temperature sensor is a device that detects and measures hotness and coolness and convert it into an electrical signal. If we place the sensor into the H2O it can discover the temperature of H2O.

LCD DISPLAY

LCD(Liquid Crystal Display) is a flat panel display which uses liquid crystals in its primary form of operations. A 16 X 2 LCD demo is the really fundamental power and its rattling commonly victimized in varied devices and circuits.

WiFi MODULE

WiFi is a subject for wireless localized area scheme with devices. WiFi subject may be utilized to render the internet reach to devices that are within the capability of a wireless mesh work that is connected to the internet.

Node MCU

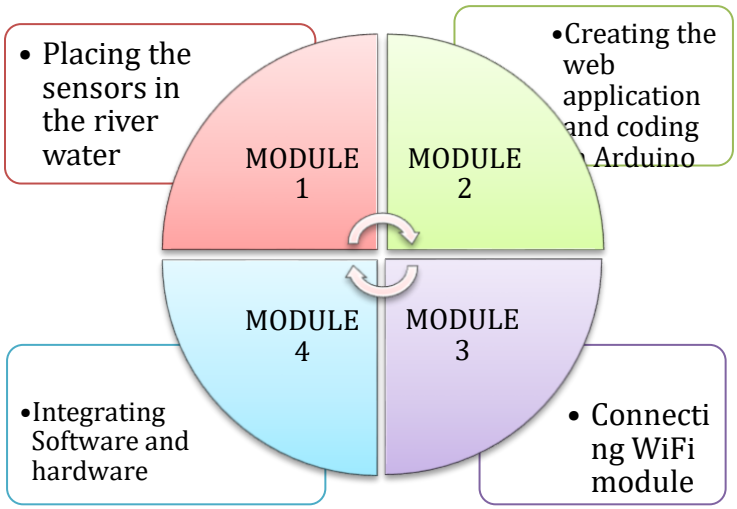
NodeMCU is an open source platform based on ESP8266 which can connect objects and let data transfer using the Wi-Fi protocol. In addition, by providing some of the most important features of microcontrollers such as GPIO, PWM, ADC, and etc, it can solve many of the project's needs alone

SOFTWARE DESIGN

The proposed water quality monitoring system based on WSN can be divided into three parts:

- IoT platform
- Neutral network models in big data analytics and water quality management
- Real time monitoring of water quality by using IoT integrated big data analytics.

WORLFLOW


• Placing the sensors in the river water
MODULE 1
MODULE 2
•Creating the web application and coding Arduino
MODULE 4
MODULE 3
•Integrating Software and hardware
• Connecting WiFi module

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