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AQUA DRONED REMOTE CONTROLLED RIVER CLEANING MACHINE

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ABSTRACT

This project emphasis on design and developing of the river waste cleaning machine. The work has done looking at the current situation of our national rivers which are dump with crore liters of sewage and loaded with pollutants, toxic materials, debris etc. The government of India has taken charge to clean rivers and invest huge capital in many river cleaning projects like "Namami Gange", ''Narmada Bachao'' and many major and medium projects in various cities like Ahmadabad, Varanasi etc. By taking this into consideration this machine has designed to clean river water surface. Nowadays almost all the manufacturing process is being atomized in order to deliver the products at a faster rate. Automation plays an important role in mass production. In this project we have fabricated the remote operated river cleaning machine. The main aim of the project is to reduce the man power, time consumption for cleaning the river. In this project we have automated the operation of river cleaning with help of a motor and chain drive arrangement. Some needs of automation are described below. Here using RF transmitter and receiver are to control the cleaning machine. Automation can be achieved through computers, hydraulics, pneumatics, robotics, etc., of these sources, pneumatics form an attractive medium for low cost automation.

Keywords: Drone, Rive Cleaning Machine

INTRODUCTION

Water is the most precious resource for the humans as well for the animals. Water is a finite and unprotected natural resource. The use of water affects the quality of this resource itself and the nature in a broader sense. Sea, river and lake water is valuable for the environment, irrigation and drinking. It is fundamental to protect and fairly use the water. It is important to manage the supply and disposal of water wisely holding that clean water continues to be available to future generations at a moderate cost. This effect of plastic to human body is cause which is done by human itself.

Humans are normally throw the plastic of any wafers which first they eat and the wrapper they throw into the water. Likewise plastic bottles are also thrown by human after their use. It may eaten by marine animals which may cause their life harm and the marine animals when eaten by humans it also cause to human body. To stop the danger of garbage thrown to water, we propose the robot ship which will help to collect the garbage from water and make water harmless and clean. The ship will totally work on solar power which is totally free energy. The ship will not need any other form energy so that it save money. In day time ship will store the energy and at night time ship will start working and collect garbage. In this way we support the Swachh Bharat Abhiyan and serve the nation to make water free from harm as well as cleanliness will maintain.

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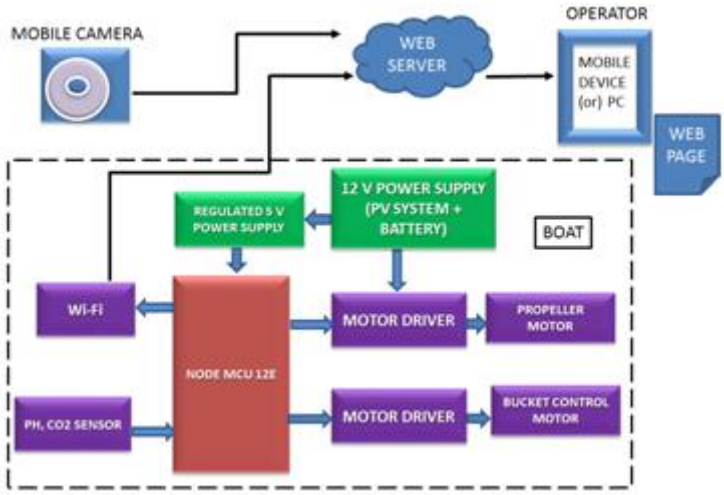
BLOCK DIAGRAM



OPERATING PRINCIPLE

A proposal of this project is to develop a river cleaning machine. The machine will be equipped with various sensors like gas sensor, PH sensor. This will be placed on a floating platform which can move in the water. Also it has a arm which is used to collect the floating solid waste on the river surface. The movement direction can be controlled using an IOT app.

CIRCUIT DIAGRAM

MICRO SERVO SD90

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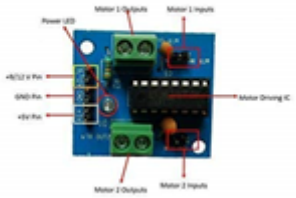
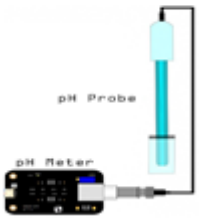
The Micro Servo is a device that has a shaft that can proportionally positioned. It output is 180 degrees. It runs on 5 or 6 volts. A single I/O pin is required to control the Servo. There is a pulse every 20 Milliseconds.If this pulse is 1 millisecond long then the output shaft will be in the 0 degree position. If this pulse is 1.5 milliseconds long then the output shaft will be in the 90 degree position. If this pulse is 2 milliseconds long then the output shaft will be in the 180 degree position. Any pulsewidth between will provide a position proportional to the pulse width.

L293D MOTOR DRIVER



L293D is a typical Motor driver or Motor Driver IC which allows DC motor to drive on either direction. L293D is a 16-pin IC which can control a set of two DC motors simultaneously in any direction. It means that you can control two DC motor with a single L293D IC.

PH SENSOR



A pH meter is a scientific instrument that measures the hydrogen-ion activity in water-based solutions, indicating its acidity or alkalinity expressed as pH. The pH meter measures the difference in electrical potential between a pH electrode and a reference electrode, and so the pH meter is sometimes referred to as a "potentiometric pH meter". The difference in electrical potential relates to the acidity or pH of the solution. The pH meter is used in many applications ranging from laboratory experimentation to quality control.

SMOKE SENSOR

An alcohol sensor detects the attentiveness of alcohol gas in the air and an analog voltage is an output reading. The sensor can activate at temperatures ranging from -10 to 50° C with a power

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supply is less than 150 Ma to 5V. The sensing range is from 0.04 mg/L to 4 mg/L, which is suitable for Breathalyzer.

ESP8266 (Node MCU) WIFI MODULE

NodeMCU is an open source IoT platform. Which includes firmware which runs on the ESP8266 Wi-Fi Module from Espressif Systems, and hardware which is based on the ESP-12 module. The term "NodeMCU" by default refers to the firmware rather than the dev kits. NodeMCU firmware was developed so that AT commands can be replaced with Lua scripting making the life of developers easier. So it would be redundant to use AT commands again in NodeMCU. The ESP8266 is a low-cost Wi-Fi chip with full TCP/IP stack and microcontroller capability

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