

Design and implementation of pond and river water cleaning robot system

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Abstract: *In our project we are designing and implementing such a system which are helpful To reduce the water pollution, we are trying to make pond cleaning robot.*

“Pond Cleaning Robot” a device which involves the removing the waste debris from water surface and safely dispose from the water body.

The pond cleaning robot works on Radio Frequency to extract wastewater debris, plastics & garbage from pond for monitoring waste collection tank we use IOT based monitoring system.

This project is also monitor through camera.

Key words – Solar Base Automation, GSM Set, LED, display.

1. Introduction

The “Pond cleaning robot” used in that places where there is waste debris in the water body which are to be removed. This machine is consists of cleaner mechanism which collect & remove the wastage, garbage& from water bodies. This also reduce the difficulties which we face when collection of debris take place. A machine will lift the waste surface debris from the water bodies, this will ultimately result in reduction of water pollution and lastly the aquatic animal's death to these problems will be reduced. It consists of Belt drive mechanism which lifts the debris from the water.

The use of this project will be made in rivers, ponds, lakes and other water bodies for to clean the surface water debris from bodies. Similarly they are lots of problems of water pollution under Godavari River Nasik, Krushna River Satara, Ganga River at north part of India pond in many of state like Chalke lake Odisha, Sambhar lake Rajasthan, Lunar Lake Maharashtra etc. which affect the acoustic, human life & beauty of River. Waste water is defined as the flow of used water from homes, business industries, commercial activities and institutions which are subjected to the treatment plants by a carefully designed and engineered network of pipes. The biggest impact of cleaning the chemical wastes can cause respiratory diseases and it plays a challenging issue for the municipality officers Water damage is classified as three types of contaminated water. They are clean water, Gray water and black water. Clean water is from a broken water supply line or leaking faucet. If not treated quickly, this water can turn into black water or Gray water, depending on length of time, temperature, and contact with surrounding contaminants. Drainage pipes are used for the disposal of sewage and unfortunately sometimes there may be loss of human life while cleaning the blockages in the drainage pipes. The municipality workers are only responsible to ensure that the sewage is clean or not. Though they clean the ditches at the side of buildings, they can't clean in very wide sewages. The municipality workers need to get down into the sewage sludge to clean the wide sewage. It affects their health badly and also causes skin allergies.

In flood condition lots of distortions will happens that time our main task is to save our lives but in flood there are lots of areas which where human can't go for patrolling and monitoring that time, we will use this robot which having inbuilt long-range camera for do this task.

2. OBJECTIVES

- Radio frequency based robot communication system which having long range (100m).
- IOT based monitoring system which provides us connectivity with our system worldwide.
- GPS will provide us better navigation system.
- Camera based monitoring system will give us better vision middle of water.
- This robot is solar powered so it will give us continues power supply extend.

3. LITERATURE REVIEW

M. Mohammed Idris In the proposed system, the machine is operated with remote control to clean the sewage. The system has a wiper motor that starts running as soon as the setup is switched on. Two power window motors are connected to the wheel and it is driven with the help of the remote control set-up. The process starts collecting the sewage wastes by using the arm and it throws back the waste into the bin fixed in the machine at the bottom. An arm is used to lift the sewage and in turn a bucket is used to collect them. The set-up runs even in sewage area with water (limited to a particular amount) so that the wastages which floats on the water surface also gets collected.

Mr. Abhijeet M. Ballade The proposed system explains that, Due to increase in water pollution in the form to waste debris; it is hampering the life of aquatic animal and makes their life in danger. So that to reduce the water pollution we are trying to make river clean-up machine. "River clean-up machine" a machine which involves the removing the waste debris from water surface and safely dispose from the water body. The river clean-up machine works on hydropower to extract waste water debris, plastics & garbage from water.

Mr. P. M. Sirsat This paper emphasis on design and fabrication details of the river waste cleaning machine. This machine has designed to clean river water surface. The remote operated river cleaning machine has designed which helps in river surface cleaning effectively, efficiently and eco-friendly. The "River waste cleaning machine" is used where there is waste..

4. APPLICATIONS

- Using remote controller unmanned water vehicle consume less power for doing same work.
- Camera application work for monitor water surface and it also being used in flood condition to monitor and rescue people.
- GSM based system is useful in pond cleaning as well as river cleaning also.
- we are more empowered in flood to rescue out our people from water.

5. BLOCK DIAGRAM

- In this system we used Arduino Uno controller for smooth operation. Using Arduino Uno we collect data from ultrasonic sensors. This sensor will help us to monitor garbage level in our robot garbage collection tank. It will monitor all time and send data to the receiver end for communication we used node MCU. Node MCU directly connected with Wi-Fi system and send data to the mobile.
- As we know we will operate our robot in large area so we required a navigation system for tracking our robot system. Therefore, we used a GPS system which is connected or monitored by mobile system.
- This robot will go were human can't go easily so this is advantage of our project. As we mentioned we design a solar powered system that's why we used a 24w solar panel to charge our 12v battery.

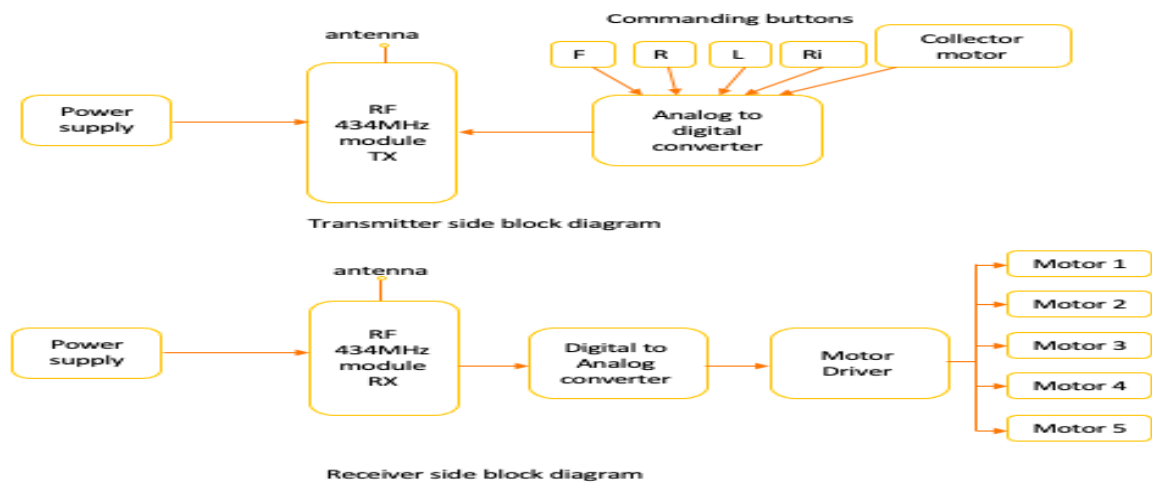
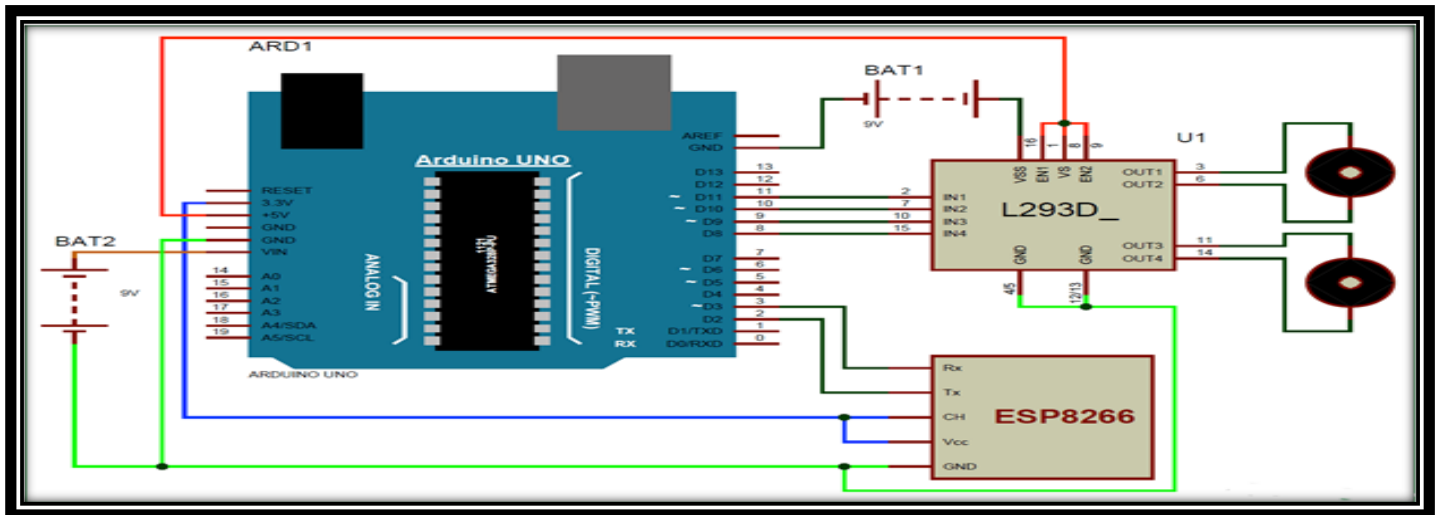
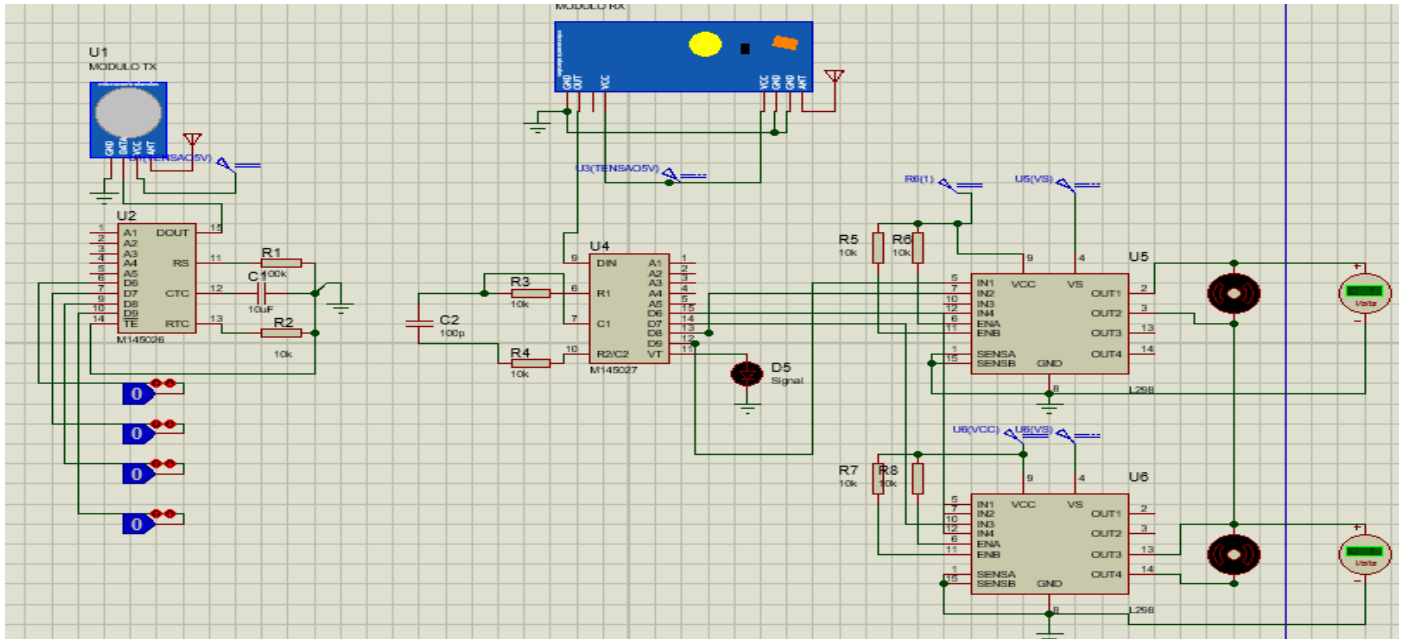


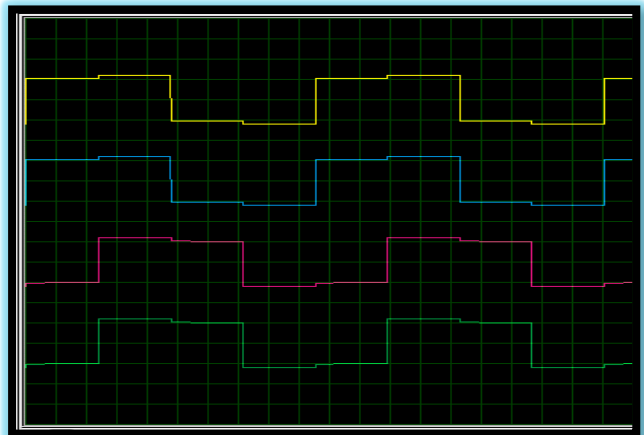
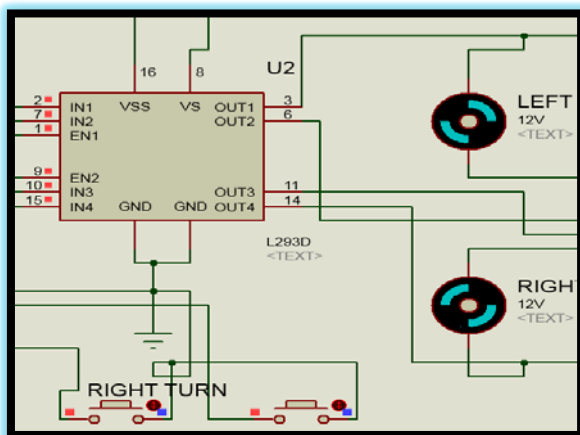
Fig.Systems Block Diagram

6. SIMULATION

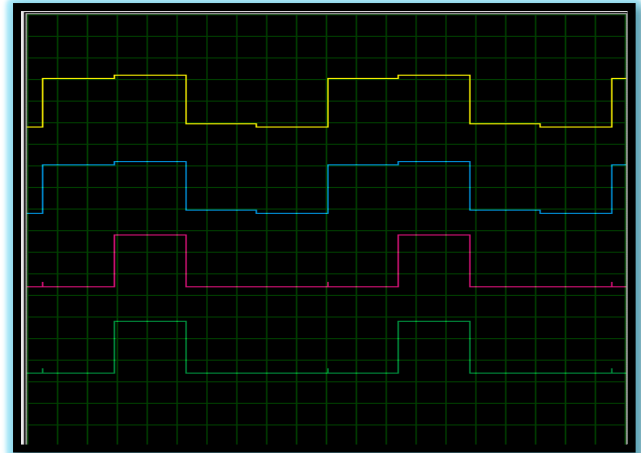
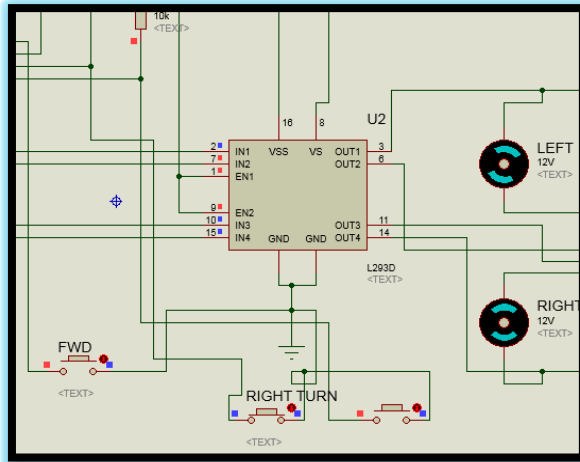


7. SIMULATION RESULTS

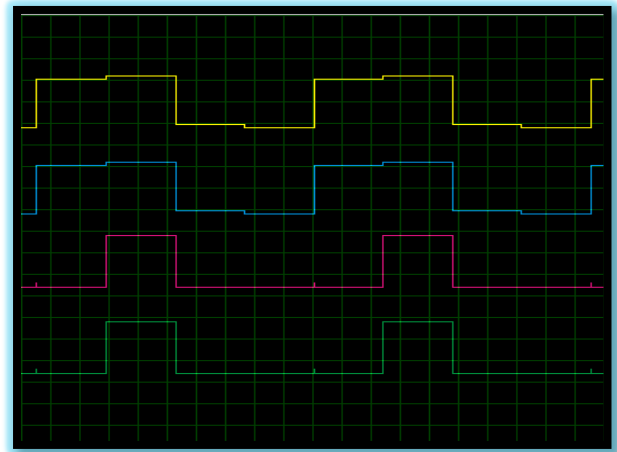
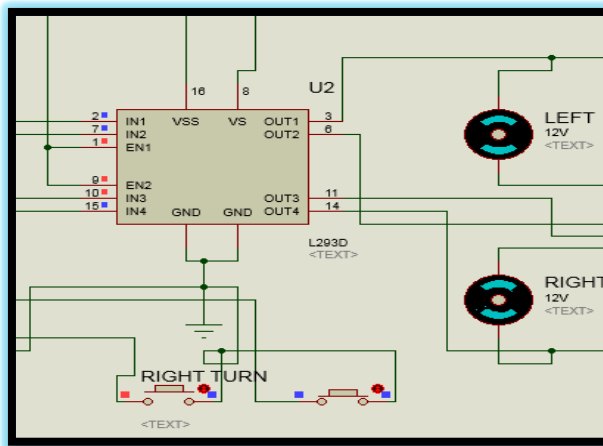
1. Forward operation.



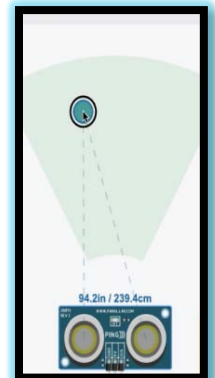
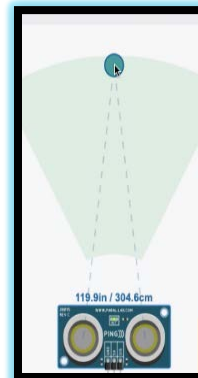
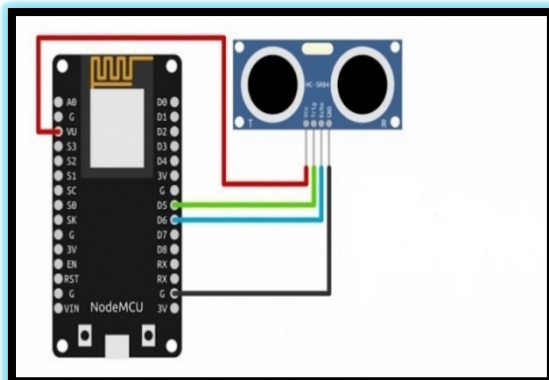
2. Right turn operation



3. Left turn operation



4. Node MCU turns Operation



8. FEATURES

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- GPS will provide us better navigation system.

- Camera based monitoring system will give us better vision middle of water.
- This robot is solar powered so it will give us continues power supply.

9. CONCLUSION

Through this project we will able to eliminate the pollution threat in water and also we are more empowered in flood to rescue out our people from water. Also by through this system we will support our governments project “NamamiGange”, “Narmada Bachao”

10. FUTURE SCOPE

- It will support our governments project
 - 1.“Namami Gange”,
 - 2.“Narmada Bachao”
- we are more empowered in flood to rescue out our people from water

11. REFERANCES

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