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Microcontroller Based River Cleaning System

S.S.Gurav[1], A.D.Patil[2], S.B.Hulle[3], S.S.Shirote[4]

Assistant Professor, Department of Electronics and Telecommunication Engineering, Sharad Institute of Technology College of Engineering, Ichalkaranji, Maharastra, India[1]

UG Student, Department of Electronics and Telecommunication Engineering, Sharad Institute of Technology College of Engineering, Ichalkaranji, Maharastra, India[2,3,4]

ABSTRACT: This project emphasis on design and fabrication of the river waste cleaning machine. “River cleaning machine" a machine which involves the removing the waste debris from water surface and safely dispose from the water body. 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. Due to increase in water pollution in the form to waste debris; it is hampering the life of aquatic animal and make their life in danger. 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. The main aim of the project is to reduce the man power, time consumption for cleaning the river. In this project we have store the energy in the battery and used this energy for river cleaning with the help of a motor and chain drive arrangement.

KEYWORDS: Motor, Chain drive, Propeller, Conveyor, River, wastage, garbage, pollution.

I. INTRODUCTION

This project emphasis on design and fabrication of the river waste cleaning machine. The work has done looking at the current situation of our national rivers which are dump with core litres 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 “NamamiGange”, ‘’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. The “River cleaning System” used in that places where there is waste debris in the water body which are to be removed. This system is consists of waterwheel driven conveyer mechanism which collect & remove the wastage, garbage & plastic wastages from water bodies. This also reduce thedifficulties 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 cleaning upper water waste debris From this project we hope to clean the surface water debris from bodies. Similarly they are lots of problems of water pollution under many Rivers.

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II. BLOCK DIAGRAM

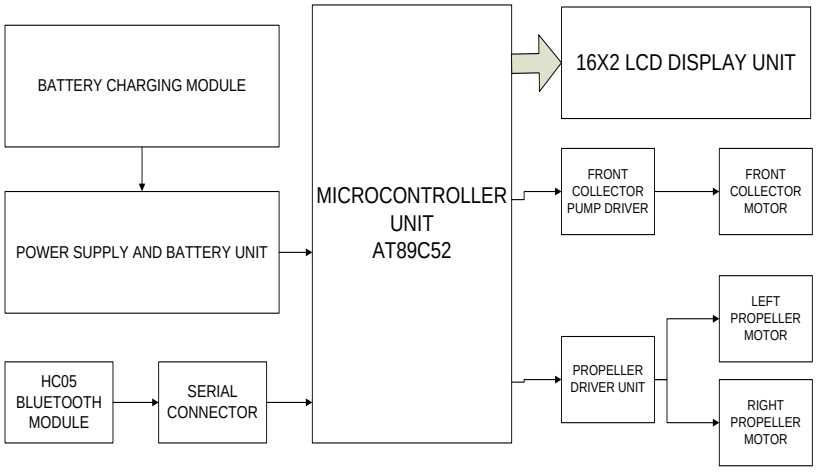

Fig.1 Block diagram of River cleaning system.

III. PROPOSED SCHEME

The proposed project work is concentrated on "River cleaning system" which is used to reduce the man power, time consumption for cleaning the river. The function of each block is mentioned as follows:

Microcontroller: Microcontroller is designed by Intel in 1981. It is an 8-bit **microcontroller**. It is built with 40 pins DIP (dual inline package), 4kb of ROM storage and 128 bytes of RAM storage, 2 16-bit timers. It consists of are four parallel 8-bit ports, which are programmable as well as addressable as per the requirement.

Battery: Battery supply of 12 V is used. Working current of battery is 7Ah.

L293D: L293D is a dual H-bridge motor driver integrated circuit (IC). Motor drivers act as current amplifiers since they take a low-current control signal and provide a higher current signal. This higher current signal is used to drive the motors

Power Supply: All digital circuits require regulated power supply. In this article we are going to learn how to get a regulated positive supply from the mains supply.

Motor: DC motor is used. Motor controllers often include a manual or automatic means for starting and stopping the motor, selecting forward or reverse rotation, speeding up or slowing down, and controlling other operational parameters.

Bluetooth: Bluetooth serial module is used for converting serial port to Bluetooth. These modules have two modes: master and slaver device. The device named after even number is defined to be master or slaver when out of factory and can't be changed to the other mode. But for the device named after odd number, users can set the work mode (master or slaver) of the device by AT commands.

IV. APPLICATIONS

It is applicable to reduce water pollution in rivers & ponds.

It is useful to reduce the environmental marine pollution at river, Lake.

It is also useful in fishery plant to collect dead fishes and solid impurities in waste water.

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VI. CONCLUSION

The project "River Waste Cleaning Machine" has designed which is very much economical, easy to operate and helpful for water cleaning and it can be modified with more Cleaning capacity and efficiency. Although the design criterion with problems definitions which, however were overcome by using references & teachers guidelines. The choice of raw materials helped us in machining of the various components to very close tolerance and thereby minimizing the level of balancing problem. It is very useful for society.

On the basis of these result we can conclude that it is an innovative method of minimizing manual stress and thus very much reliably stabilizing the in the river. The project carried out by us made an impressing task in the environmental purpose and it is very useful for the small scale works. Although this system able to collect the garbage from the lake with human intervention. The objective of the project was successfully achieved.

VII . REFERENCES

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