iJRASET
International Journal For Research in Applied Science and Engineering Technology



INTERNATIONAL JOURNAL FOR RESEARCH

IN APPLIED SCIENCE & ENGINEERING TECHNOLOGY

Volume: 8 **Issue:** V **Month of publication:** May 2020

DOI: http://doi.org/10.22214/ijraset.2020.5161

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International Journal for Research in Applied Science & Engineering Technology (IJRASET)
ISSN: 2321-9653; IC Value: 45.98; SJ Impact Factor: 7.429
Volume 8 Issue V May 2020- Available at www.ijraset.com

Modification of River Cleaning Machine

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Abstract: ***Now a days water pollution is increasing day by day so this is becoming serious problem for a river, pond, lake, etc. The motive of the project is done looking at the current scenario of our country's river which are dump with crore litres of sewage and loaded with pollutants, toxic materials, etc. it is polluting the water and hence there is a danger for the aquatic animal life. Automation is being implemented in today's life so the work done by human becomes easy and safe, also reduce time due to efficiency. The project consists of motor, conveyor belt, solar panel, Arduino, GSM and IR sensor. The motor is connected to the chain and sprocket through shaft which is driven with the help of the remote controller. The waste material is collected and thrown in dustbin and sms is sent to the person when dustbin is full. The main objective is to reduce man power and time consumption.***

Keywords: Motor, Solar Panel, GSM, Arduino, IR sensor

I. INTRODUCTION

Lakes and rivers are an important feature of the Earth's landscape. They are extremely valuable ecosystems and provide a range of goods and services to humankind. They are not only a significant source of precious water, but extend valuable habitats to plants and animal, moderate the hydrological extreme events(drought and floods), influence microclimate, enhance the aesthetic beauty of the landscape and offer many recreational opportunities. In the past few decades, there has been increase in the water pollution because people migrate to the urban areas in search of the employment. The expansion of civic facilities are adequate infrastructure for the disposal of waste. Almost all urban water bodies are suffering from water pollution because of the local sewage and solid waste. Thus the water is now not useful for drinking water and the aquatic life also has come to extinction.

II. LITERATURE STUDY

A. Abhishek Anil Batavale, Santosh Dhebe, 5 May 2019

In this system the main purpose of this machine is to collect solid waste from drainage system and collect it in bucket, this system will work on solar energy so it can be used where electricity is not available, this is best energy source used for machine. There is no cost of energy. So this is main advantage of this project, this system is eco-friendly.[1]

B. C. Manoj Kuma, Dr. N. Nithyavath, 2 March 2017

In this research paper objective of making this was to clean the river by collecting the waste material. It also reduce the man power using of RF controller. RF controller is used to control the machine. RF controller is connected with the arduino. The RF (Radio frequency) transmitter transmits the signal as the switches are operated by human this system is good and does not require any labor to control the machine.[2]

C. S. Jayasree, Dr. Smt. G. Prasanthi, 6 Sep 2018

This paper is on sewage or drain cleaning system which is based on automation. It is made possible by embedded design which is a combination of both computer and mechanical system. In this system Arduino UNO, GSM and IR sensor is used to make automation. It is made possible by embedded design which is a combination of both computer and mechanical system.[3]

D. Rahul Prakash K.V, Jithu Markose, 2017

In this research paper for the power source solar battery is used, which benefits for the environment because it does not cause any pollution. Battery is charged with the help of solar panel also they had used timer circuit. The timer circuit limits the working time of the system, which allows the system to charge the battery for full day operation.[4]

E. Kashinath Munde, Madhavi N. Wagh, 2018

In this research paper the main aim of the project is to reduce the man power and time consumption to clean the river. For controlling the machine, they had used blucontrol it is android application it utilize a custom java virtual machine that was designed to optimize memory and hardware resources in a mobile. It is smartest way to control the machine.[5]

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III. PROBLEM STATEMENT

We have many problems related to the solid wastages floating in the river. The amount of waste material is increasing day by day due to people's constant use and throwing wastage in river, the wastage also increases much during the festivals. People worship Gods by flowers, these flowers are later thrown in the river or lake. There are many type of river cleaning machine which are operated by the IC engine which are harmful for environment. We have tried to solve this problem and make the machine which runs solar energy and also make automated system so there is very less involment of human, hence safety for the human health.

IV. MAIN COMPONENTS

A. 12V DC Motor
B. Solar panel
C. Arduino UNO
D. GSM Sensor
E. IR Sensor
F. Body Frame
G. Shaft
H. Bearing
I. Chain
J. Sprocket
K. Collecting Tray

V. WORKING

The main aim of this river cleaning machine is to collect waste material from the river, lakes, etc., the solar panel converts the solar energy to the electrical energy. This energy is then supplied to the motor which is connected to the chain and sprocket. The motor moves the chain and it collects the waste material from the surface of the river and throws in the collecting tray. IR sensor is fitted in the collecting tray, when the waste reaches at the top the IR sensor sense and it sends signal to the Arduino. Later Arduino sends signal to the GSM and it sends message to the user through the phone that the bucket is full.



Fig. 1 Our Model River Cleaning Machine

VI. RESULT AND DISCUSSION

We had assemble the all parts of the river cleaning machine. After assembling the machine we can start the testing of the machine that it work as per our plan. Our main aim of the project is automation and working on the solar energy and the motor also carries the load of wastage through the conveyor belt. For the automation, we faced problems of programming of the GSM and IR sensor but finally it worked. The project has been successfully implemented. Thus our project has been successfully designed and tested. Our machine is eco-friendly hence it does not require any fuel to run. The is working efficiently and smooth.

VII. CONCLUSION

This project river cleaning machine is mostly design to make system very much economic and also automated system. This machine removes waste materials like plastics, water debris, etc. from the rivers, lakes, etc. which float on the water surface. This process is eco-friendly too. This machine is very helpful for maintaining human health and for increasing life of aquatic animals.

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VIII. FUTURE SCOPE

A aluminium plate can be added so that the oil present in the river can also be removed. It is possible to make fully automated system by the implementation of control algorithms. This helps in making our nation clean & health.

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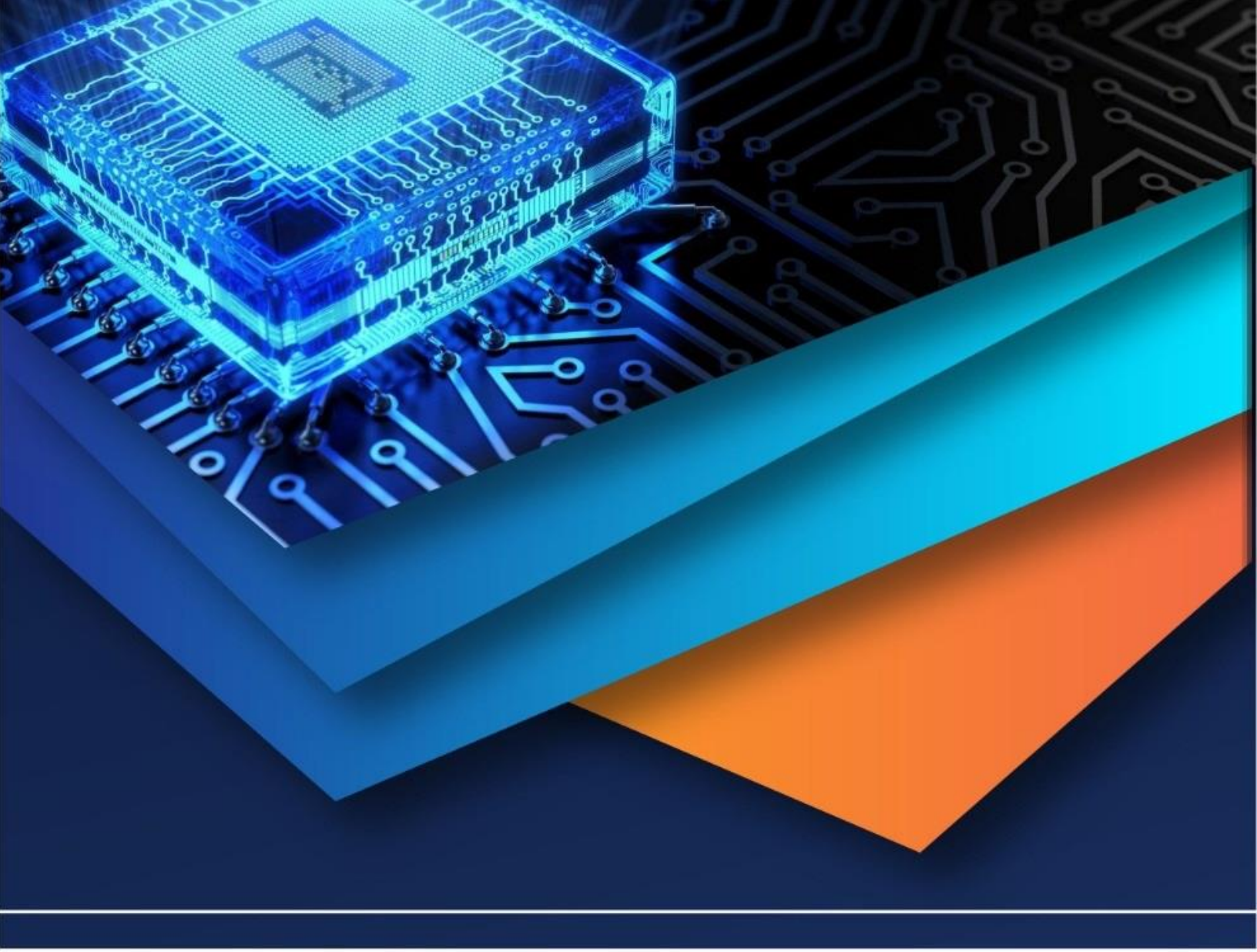
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