

## DESIGN AND FABRICATION OF WATER TRASH COLLECTOR – A REVIEW

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### ABSTRACT

These days, the environment problems such as garbage waste are increasing day by day in many cities in India. These problems arises due to industries waste, construction sites and waste from building houses. And during the various festivals like Ganpati visarjan, Navratri there is lots of waste thrown in rivers which causes the river water being polluted. Due to floating of waste in rivers the water becomes smelly & dirty. In lakes also the waste can block the water flow. We are trying to design our project to use in easy and efficient way to collect the Wastages, and dispose in dumping grounds provided by governments.

**Key Words :** industrial waste, dirty ,dispose.

### 1. INTRODUCTION

The waste from the industries and during various festivals is being dumped in the rivers and lakes that need to be clean. These waste includes plastic bottles, plastic bags, cloths, flowers, paper boxes, etc. the drainage waste is also a kind of serious problem, the humans are risking their life's while cleaning the blockages in drain pipes and it can cause a health issues like dengue, malaria, etc. The project that we are designing will have the great impact on these kind of problems.



Fig.1

### 2. PROBLEM DEFINITION

- In this project the designed concept is to reconstitute the manual work in river & drainage cleaning by automated system.
- The designed project is used for collection of floating waste in rivers, lakes & drainages and dispose the waste to a provided location like dumping grounds.

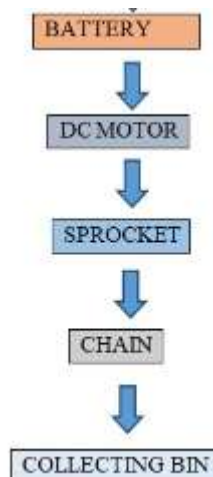


Fig.2 Block Diagram

### 3. LITRATURE REVIEW

#### 1. Drainage System Cleaner A Solution to Environmental Hazards.

(March 2014)

The Drainage system cleaner is a machine which helps to protect the environment from different kinds of environmental hazards through the promotion waste management by the removal of garbage from the drainage system. These wastes when not removed end up settling in residential places where these wastes are burnt thereby causing climate change otherwise these wastes block the drainage systems thereby causing flooding. The machine is designed in such a way that it generates motion for its functions by itself through the action of running water thereby cutting out the dangers of the powering the machine by other sources of power because of the harshness of the rain on these other sources. The drainage system cleaner has three major parts which are the Propeller, the Cleaner and the Pan all make up for its effective functioning. The Drainage system cleaner was tested on three different days in the first day it rained in the months of September, October and November 2012 respectively. Based on the findings made after the test the Drainage system functioned well when there is maximum load.

#### 1. AGATOR (Automatic Garbage Collector) as Automatic Garbage Collector Robot Model. (October 2014)

This research aims to design and make AGATOR (Automatic Garbage Collector), a rotor robot model as automatic garbage collector to counter accumulation of garbage in the lake which has no flow effectively and efficiently. Support devices of the robot are mechanical robot, robot control system, sensor system, and actuator robot. The maximum load drives the garbage receptacle until 5 kg. The average speed of robot when take out the garbage is 0.26 m/s.

#### 2. Study of River Harvesting & Trash Cleaning Machine. (March 2016) With this project the automation regarding the labour work have been increased exponentially and this has to be taken still better ways to improvise the future.

#### 3. Efficient Lake Garbage Collector by Using Pedal Operated Boat. (April 2016) This project focused on modeling, design and control of pedal operated boat, with emphasis on lightweight, portable appliances. An innovative method of minimizing manual stress and thus reliably stabilizing the garbage collect in the boat. The project carried out by us made an impressing task in the environmental purpose. It is very useful for the small- scale works. This project has been designed to perform the entire requirement task, which has also been provided.

#### 4. Semi-Automatic Drain For Sewage Water Treatment of Floating Materials. (July 2016) While conducting the experiment the parameters considered are uniform flow rate of water, depth of the channel is 1feet and height of the channel is 3feet, rate of disposal of waste is uniform, lifter speed and motor speed is constant.

- Alarm will turn on when the collecting bin is filled.
- Lifter speed is constant and it regularly lifts the waste.
- Cost of the machine is economic and it requires only 12- 24 volts of current.
- Time taken by each lifter to lift each object from bottom to top is 11.46 seconds.
- Min time taken by collecting bin to fill completely is 1 day.
- Quantity of waste collecting in the collecting bin is nearly 8-9 kilograms.

#### Design & Fabrication of River Cleaning System.

(February 2017)

While concluding this report, we feel fulfill lots of practical experience during the manufacturing schedules of the working project model. We are happy that our knowledge has been used for social welfare. Although the design criterions 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. We will do efforts during machining, fabrication and assembly work of the project model to fulfill the need of project.

**Automatic Drainage Cleaning System.** (February 2017) The deplete squander water cleaner machine is planned and made by utilizing gear changing and shaft coupling rule. It comprise fundamentally DC equipped engine, shafts, squander expulsion plates, clean receptacle, course, sprocket and chains. Construction materials are effortlessly available, creates work (development and maintenance), simple to build.

#### Design & Fabrication of Automatic Drainage Cleaning System using Solar Panel. (May 2017)

In this paper, Drain can be cleaned continuously by the help of model using the drive system to remove the solid waste and threw it into waste bucket. This project is designed with the objective to initiate the efficient working of system. This project automatically cleans the water in the drainage system each time any impurity appears, and claws which are

driven by chain sprocket grasp the solid waste and threw it into the waste bucket to avoid blockage. It even reduces the cost of manual labor as well as reduces the threat to human life.

**Automatic Garbage Collector Machine.** (April 2018)

- 1) It has been decided that project should make considering the use of electronic system under the guidance of respective subject a specialized person.
- 2) Search has been made for the need of efficient technology by finding the problem faced by the different system.
- 3) It has been found that in various technologies are cost- effective and slow in response.
- 4) Group has come up with the concept of fabrication of automatic garbage collector system which will be less costly.
- 5) A different type of equipment electronics component has been found and their working has been studied.

#### 4. CONCLUSION

The design made for “design and fabrication of water waste collecting machine” is used for collecting the garbage from rivers, lakes, and canals, etc. Thus it helps in preventing of diseases like dengue, malaria and helps to keep the water clean and the ecosystem of the water bodies can be well maintained.

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