

# Review on Design and Fabrication of Floating Waste Collector

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## Abstract

Water is the basic need for all Mankind. However, in recent years various water bodies are being polluted due various causes. Either it may be due human waste or in certain cases; it may be due to the natural waste. These water bodies are polluted and cannot be used directly. The government has taken up various efforts to clean these water bodies. Huge capital investment has been made for the clean-up purpose. By considering this, the project has been made in order to minimize the government cost in cleaning the lake. The amount can be used elsewhere for the benefit of the country and its people. This project will encourage the tourist who while be visiting Rivers and Lakes to ride the boat across the water body and simultaneously clean the lake.

## I. Introduction:-

Water is a necessity of human and living beings. There is a plenty of water on earth that is not suitable for human use. [1] The impurities present in water can cause hazardous diseases. Water is available to use in the form of Rivers, Lakes, and Rains etc. However, nowadays these water bodies are frequently been polluted due to human waste dumping. These wastes includes plastic bottles, wrappers, polythene bags, etc. these wastes float on the surface of the water bodies. [2]

In the case of drainage, these floating wastes obstruct the flow of water flow. This leads to the blockage of drains. Especially during rainy season, the blockage of drains will lead to flood. As there will not be flow of water due to the floating wastes. [3] For the rivers and lakes, these places are often a major attraction for tourist. Tourists tend to pollute the water bodies by dumping waste bottles etc. Government has been spending huge amount of money in cleaning these water bodies. The government of India has taken charge to clean rivers by implementing river cleaning projects like "Namami Gange", "Narmada Bachao" and many major and medium projects in various cities like Ahmadabad, Varanasi etc.[4][5]

The floating bodies will obstruct the external Oxygen from mixing with the water. This low Oxygen level in water will affect the Aquatic Ecosystem. There are some other alternatives machines for the River and Lakes trash cleaning.[6]Most of them use a simple conveyor system which is operated with chain and sprocket powered by motor. Certain projects are pedal boats with similar conveyor mechanism, which collects the waste into the tank.

## II. Literature Review:-

Harshvardhan Baria, Mackwan Akash, Nirav Makwana, Raj Parmar, Mr. Sharad Chhantbar "Review Paper On Automated Drainage Cleaning System"[1], they a made a System which collects the floating waste from the drainage without any human assistances. They implemented a simple mechanism of motor, screw conveyer and sprocket, lifter in order to achieve an automated sewage wastewater treatment. This reduces human effort and during rainy season by increasing the motor speed, they can prevent the drain from getting block due to floating waste.

Manoj Rathod, Vasant Pund, Rahul Pungle, Jiwan Rathod "Automatic Floating WasteCollector" [2],have prepared a machine to minimize the manual effort to clean the lakes and use automated system. They have merged all the

systems of Mechanical, Electronic and Computer into one machine, which cleans floating wastes. This type of mechanism is simple in design also easy to use.

Mahto Ravishankarkumar Ravindrabhai, Dehadray Vaibhav, Kaka Smit, Prof. Ankur Joshi “Design And Fabrication Of River Waste Collector”[3], they modified the boat and converted it into a floating waste collector for rivers. This task is created dependent on contemplating distinctive writing and research on various papers so it can give adaptability in activity. The undertaking "River Waste Collector" is structured with the expectation that it is especially useful to waterway and River cleaning.

Prof. N.G.Jogi, Akash Dambhare, Kundan Golekar, Akshay Giri, Shubham Take “Efficient Lake Garbage Collector By Using Pedal Operated Boat”[4], they have made a pedal boat with a conveyor system on it which collects and dumps the floating waste into the tank. This task concentrated on demonstrating, structure and control of pedal worked pontoon, with accentuation on lightweight, compact apparatuses. The goal was effectively accomplished impressing task in the environmental purpose.

Sheikh Md, Shahid Md Rafique, Dr. Akash Langde “Design and Fabrication of River Cleaning Machine”[5], their project is been made looking after the situation of rivers which are filled with sewage and plastics wastes. Their project main aim is to reduce the labor and focus on automation. Government has implemented river cleaning projects like “Namami Gange” & “Narmada Bachao” where huge money is invested. Their project is cheap and automated so it is easier to use. Their project has an 80W motor and 85W battery which provides a runtime of 1hr 15min on paper.

Madhavi N.Wagh, Kashinath Munde “Design and Analysis of River Water Cleaning Machine”[6], their project focuses on improving the government efforts for cleaning the Lakes and River. Their project is automated which can be operated remotely. Without being on the machine their machine can clean the river with some commands to be given through a controller. Arduino board, Bluetooth Model, Battery's, Solar Panel, Blucontrol Android APP, DC Motors, Conveyor Belt. As it is powered by solar energy, they achieved their objective of automation for a small scale cleaning purpose.

Ganesh S. Patil, Rahul A. Pawar, Manish D. Borole, Shubham G. Ahire, Ajay L. Krishnani, Amit H. Karwande “Review Paper on Drainage Water Cleaner Machine”[7], they made a machine which will clean the drainage without human intervention and also prevent blockage in the drain. Their project is solely focused on solid waste management. The flow of the drain is necessary especially during the rainy season there is a high chance of drains getting block. Due to the floating wastes such as polythene bags, plastic bottles, papers, leaves etc. so their machine needs to be installed at the drainage openings where with some conveyor and bucket type mechanism collects the waste automatically and dumps it in to the collecting tank or dustbin.

Pranay Agrawal, Bishakh Bhattacharya “Aquatic Multi-Robot System for Lake Cleaning”[8], this project is an automatic aquatic vehicle, which can be remotely operated for cleaning the water bodies. Their project is based on novel algorithm, which is used for navigating and waste removal strategy. They have designed this robot in such a way that they do not need much of human intervention and do not need any maintenance. This robot not only can be used for lake cleaning if they did certain changes in their mechanism and algorithm it can detect and catch fishes

### III. CONCLUSION

By studying these literature reviews, we conclude that there have been done many studies in the category of cleaning the rivers, lakes & drainages and with respect to automation of the projects in greater depth. [1] The automated drains have common mechanisms such as chain and sprockets, which is powered by an electric motor. Few of the motors were powered by Arduino.[2][3][4] The floating waste collectors, which were made, had a similar mechanism to that of the drainage cleaner. The boats had a conveyor ahead of it. The boats are pedal powered and batteries power the motor. Based on the load the batteries work. On paper, a boat had the battery running for about an hour.[5][6][7]

Based on the above literature reviews we are focusing more on a lake clean system. Which is been powered by a pedal power system. We are solely focusing on the tourist boat factor. Where with the help of tourist who will be visiting the lakes and rivers will cruise across the river for the entertainment purpose and simultaneously collects the waste.

#### IV. REFERENCES

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