

# AUTOMATIC FLOATING WASTE COLLECTOR

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## ABSTRACT

*In this project the proposal concept is to replace the manual work in drainage cleaning by automated system. Now a day's even through automation plays a vital role in all industrial applications in the proper disposal of sewage from industries and commercials are still a challenging task. Drainage pipes are using for the disposal and unfortunately sometimes there may be loss of human life while cleaning the blockages in the drainage pipes. To overcome this problem and to save the human life we implement design "automatic sewage cleaning system". We designed our project to use this in efficient way to control the disposal of wastages and with regular filtration of wastages. Wastewater is defined as the flow of used water from homes, businesses, industries, commercial activities and institutions which are subjected to the treatment plants by a carefully designed and engineered network of pipes. This type of wastewater is classified and defined according to its sources of origin. Typically 200 to 500 litres of wastewater are generated for each person connected to the system every day. The amount of flow handled by a treatment plant varies with the time of day and with the months of the year. The processes reviewed here include both those that remove pollutant dirt in wastewater and those that vanishes them. Using a wastewater treatment technology that removes, rather than destroys, a pollutant will give a treatment remains. At wastewater treatment plant, this flow is treated before it is allowed to be returned to the environment. There are no holidays for wastewater treatment, and most plants operate 24 hours every day of the week. Wastewater treatment plants works on critical point of the water cycle, helping nature protects water from the excessive pollution. Most treatment plants have primary treatment and secondary treatment.*

**Keyword:** - Wastewater, primary treatment, secondary treatment, etc.

## 1. INTRODUCTION:-

Automatic drainage water cleaning and control system using auto mechanism proposed to overcome the real time problems. With the continued expansion of industries, the problem of sewage water must be urgently resolved due to the increasing sewage problems from industries of the surrounding environment. The waste and gases produced from the industries are very harmful to human beings and to the environment. Our proposed system is to cleaning and control the drainage level using auto mechanism technique. Auto mechanism is the major controlling unit and the drainage level a monitor by municipal .In this system we used motor, chain, driver, bucket, frame.

The Maharashtra floods refers to the flooding of many parts of the Indian state of Maharashtra including large areas of Mumbai city located on the coast of the Arabian Sea, on the Western coast of India, in which almost 1,094 people died. It occurred one month after the June 2005 Gujarat floods. Large numbers of people were stranded on the road, lost their homes, and many people walked very long distances back home from work that evening. The floods were caused by the heaviest, ever recorded 24-hour rainfall of 944 mm (37.17 inches) which lashed the metropolis on 26 July 2005, and continued for the next day. 644mm (25.35 inches) was received

within the 12-hour period between 8am and 8pm. The rainfall continued for the next week. The highest 24-hour period in India was 1,168 mm (46.0 inches) in Aminidivi in Lakshadweep on 6 May 2004 although some reports suggest that it was a new Indian record. Keeping in mind the natural calamities and Swachh Bharat Abhiyaan we have made this project. As this project is very compact as compared to other municipal machineries used to drain out the wastes. As the big machineries causes traffic jams on the roads and highways, but by using this we can easily remove waste easily and without causing any traffic jams.

Water is a basic necessity of humans and all living beings. There is a plenty of water on earth but that is not suitable for human use. Clean water is more important if used for some purpose. The impurities present in water can cause hazardous and disease. As long as the draining system is considered the function of the main drainage system is to collect, transport and dispose of the water through an outfall or outlet. Impurities in drainage water can be only like empty bottles, polythene bags, papers etc.

These impurities present in drainage water can cause blockage of the drainage system. The drainage system can be cleaned time to time manually or such a system can be designed that will automatically throw out wastages and will keep the water clean. This project is designed to keep clean the drainage system and helps the smooth working of the system. This project automatically cleans the water in the drainage system each time any wastage appears and this form an efficient and easy way of cleaning the drainage system and preventing the blockage. It also reduces labor and improves the quality of water that is cleaned. If the garbage are allowed to flow they will end up flowing down to recreational beaches used for tourism purposes making a scene not pleasurable to the eyes else these garbage flow to residential sites where they are burnt in a way of getting rid of them, thereby causing climate change. The drainage systems are cleaned when there is no water in them i.e. when it is not raining, but when it is raining the drainage systems cannot be cleaned because of the harsh conditions of the rain which no one would volunteer to endure to ensure garbage does not enter into the drainage systems.

### **1.1 OBJECTIVES:-**

The main objective of this project to minimize or overcome the problem which can face in manual machine, also increased the dumping rate of waste, And help to operator do easily work. The purpose of selecting drain waste water cleaner machine is is follow-

- Simplicity of Design and Control.
- This type of machine are easy to operate and less time consuming.
- Evaluate the effectiveness of alternative drainage design and operational practices, to reduce nitrate-N losses from drained agricultural lands.
- Assess the impact of various soil and crop management practices on reducing nitrate-N loadings to subsurface drains.
- Assess the need for further research in other aspects of water quality from drained agricultural lands, including the emerging issues of pathogens and phosphorus from manure applications.

### **1.2 Working principle:-**

The device is place across a drain so that only water flows through the lower basement. Floating waste like bottles, plastic cans, covers.....etc. is lifted by lifters which are connected to the chain. The chain revolves with the sprocket wheel which is driven by the motor. The energy provided to the motor is electrical energy. When motor runs the chain starts to circulate making the lifter to lift up. The wastage material are lifted by lifter teeth and stored in storage or collecting bin. Once the collecting bin is full, the waste materials are removed from the bin.



**Figure 1: Working principle**

## 2 SPECIFICATIONS OF MATERIAL:-

SR. NO.	NAME OF MATERIAL	SPECIFICATIONS OF MATERIAL
1.	Square pipe	Material: M S Dimensions: 25 mm x 25 mm x 20 ft. Thickness: 2 mm
2.	M S sheet	Material: M S BRIGHT Dimensions: 800 mm x 400 mm Thickness: 2 mm
3.	Round bar	Material: M S BRIGHT Dimensions: 20 mm x 800 mm.
4.	square bar	200 mm x 50 mm
5.	Pedestal	UCP- 204 ID: 20 mm
6.	Chain	Pitch: 5 mm Length: 1200 mm
7.	M S plate	6 mm x 10 mm

8.	<b>Grub screw</b>	<b>Material: M S</b> <b>Dimensions: 40 mm x 200 mm</b> <b>Thickness: 5 mm</b>
9.	<b>M S flat</b>	<b>Material: M S BRIGHT</b> <b>Dimensions: 40 mm x 06 mm</b> <b>Thickness: 3 mm</b>

### 3. ADVANTAGES:

- Construction materials are often locally available.
- It is Portable.
- Production cost is very low.
- No need of purchase special machine.
- Its operated and manufactured is simple.
- It is compact and portable.
- It can be efficiently used.

### 4. DIS-ADVANTAGES:-

- Small vibration will occur.
- In order to avoid vibration the machine should be properly foundation with the floor.
- This system requires external power supply.
- It is difficult to operate during flood.

### 5. CONCLUSIONS

Automation is a technology concerned with his application of mechanical, electronic and computer based systems to operate and control production. This project may be developed with the full utilization of men, machines, and materials and money. Also we have followed thoroughly the study of time motion and made our project economical and efficient with the available resources. this system was designed, fabricated successfully and also tested. It works satisfactorily. we hope that this will be done among the most versatile and interchangeable one even in future. Thus we can able to obtain automatic floating waste collector equipment.

### 6. REFERENCES

1. International Refereed Journal of Engineering and Science (IRJES)ISSN (Online) 2319-183X, (Print) 2319-1821 Volume 3, Issue 3(March 2014), PP.54-60.
2. International journal of innovative research in technology 2014 IJIRT Volume 1 Balachandra.G1, Karthikeyan.S2, Elangovan.K3, and Divya.N4. 1,2,3B.E/EEE Final year, Knowledge Institute of Technology, Salem, India4Assistant professor, Department of EEE, Knowledge Institute of Technology, Salem, India.
3. Theory of machines –S S Rattan Department of Mechanical Engineering Regional Engineering College Kurukshetra (2004). Publication: Tata McGraw-Hill Publishing company Limited.
4. Design of machine elements (DME-II) by K Raghavendra .first edition 2015.
5. Design and Data hand book for Mechanical Engineers by K Mahadevan and K Balaveera reddy. Fourth edition 2013.