



Automatic Drainage Cleaning System

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Abstract:

The drive of the project is to mechanize the sewage cleaning process in drainage, to shrink the wide-spreading of diseases to human. The sewage water cleaning process helps to inhibit pest infestations by reducing the residues that can attract and support pests inside drainage passages. At given presented system, the machine operate with mechanized control to clean the sewages. the proposed system sidesteps the impacts from the sewage waste and its harmful gases. This helps to prevent the mosquito generation from the wastage. The system has a motor that starts running as soon as the set-up is switched on. The process starts collecting the sewage wastes by using the jaws and it throws back the waste into the bin fixed in the machine at the top. The set-up runs even in sewage area with water limited to a particular amount so that the wastages which floats on the water surface also gets collected. The garbage which affects the drainage is also picked up and removed. This system has limited human involvement in the process of cleaning and in turn moderates spreading of diseases to mankind.

Key words: Mechanical Drain System, Auxiliary Drain, hybrid, Essential Treatment, efficient.

I. INTRODUCTION

Automatic drainage water cleaning and control system using auto mechanism proposed to overcome the real time problems of swages getting blocked due to congestion of wastes from localities to the drains. With the continued expansions of human populations and housing societies, the problem of sewage water must be urgently resolved due to the increasing sewage problems from industries of the surrounding environment. The wastes produced from the industries are very harmful to human beings and to the environment. Our proposed machine 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, chain, driver, bucket, frame.

The wastes and garbage present in water can cause hazardous piles in drains and spreads diseases across the locality. 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 channel. Impurities in drainage water could be only like empty bottles, polythene bags, papers etc which causes block and resistance to water flow. These impurities present in drainage water can cause blockage or 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 labour and improves the quality of water that is cleaned. If the garbage are allowed to flow the 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. Automatic Drainage Water Cleaning overcomes all sorts of drainage problems and promotes blockage free drains promoting continuous flow of drain water. In the modern era there have been adequate sewage problems where sewage water needs to be segregated to clean our surrounding environment. The waste and gases produced from the industries are very harmful to human beings and to the environment. Our proposed system is used to clean and control the drainage level using auto mechanism technique.

II. PROBLEM STATEMENT

Now a day's automation plays a very important role in all processes and its applications for the proper disposal of sewage from industries and household, but it is still a thought-provoking task. Drain pipes are used for the adequate disposal of waste and unfortunately sometimes there may be a threat to human life during the cleaning of blockage in the drain pipes or it can cause serious health issues because of the pertaining problems like malaria, dengue, etc.

In order to overcome this problem as well as to save human life we implement a design. We designed our project in order to use it in an efficient way to control the disposal of waste along with regular filtration of drains, removal of solid waste in order to avoid blockage in drains to promote continuous flow of drainage water which ultimately reduces the threat to human life.

II. OBJECTIVE

The major objectives of the proposed work are, Design of mechanical drainer, taking into account the various factors that might affect the functionality of the equipment. Fabrication of the model and Assembling of the model carried out, then

process are studied and optimized for effective semi-automatic drainer for sewage water treatment for floating materials.

IV. METHODOLOGY

The device is placed 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. The device is placed across drain so that only water flow through lower grids, waste like bottle, Etc. Floating in drain are lifted by teeth which is connected to chain. This chain is attached by gear driven by motor. When motor runs the chain starts to circulate making teeth to lift up. the waste materials are lifted by teeth and are stored in waste storage tank.

AUTOMATIC DRAIN CLEANING SYSTEM

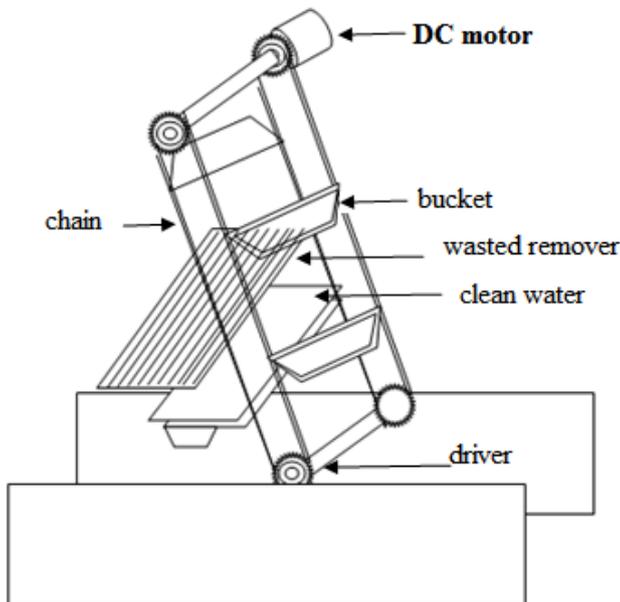


Figure.1. Layout of the Automatic Drainage cleaning system

V. SYSTEM FLOW

Methodology used for whole processing of Drainage cleaning Machine is given below; this methodology gives way about how work is to be carried out in systematic way. It is standard process of describing process, how it is done in simplest manner. Configuration comprises of use of logical guideline, specialized data, and creative energy for advancement of new component to perform particular capacity with most extreme economy and effectiveness. Thus cautious outline approach must be embraced.

1. SYSTEM DESIGN

Framework configuration is for the most part concerns the different physical limitations and ergonomics, space prerequisites, game plan of different segments on casing at framework, man-machine collaboration, no. of controls, position of controls, workplaces, of upkeep, extent of change, weight if machine from ground level, add up to weight of machine and significantly more.

2. MECHANICAL DESIGN

Mechanical outline stage is imperative from the perspective of originator as entire achievement of venture relies on upon the right plan examination of the issue. Numerous preparatory options are killed amid this stage. Creator ought to have sufficient learning about physical properties of material, load stresses and disappointment. He ought to recognize all inside and outer powers following up on machine parts.

VI. FABRICATION OF MODEL

Basically during fabrication of the model the basement part is prepared by welding the metal bars by electric welding. Then the supporting rods are welded at an angle of 90 degree from the basement, the pillow block bearings are fixed to the supporting rod and the front part of the basement. Hollow cylindrical shafts are fixed to the bearings and also chain drive are also fixed to the shaft in order to fix the shafts the factor of safety of the chain is calculated. Then lifters are fixed to the chain by gas welding at an equal distance from each.

VII. ADVANTAGES

- Minimal effort deplete off arrangement if depletes as of now exist.
- Development materials are regularly locally accessible.
- Makes work (development and support).
- It is Portable.
- This cleaning system is easy to operate and cheap to fix the drainage problems. And, there is a reduction of labour oriented method of cleaning, thus upgrading dignity of labour.
- It is a light weighted and portable machine that requires less power. Large amount of garbage is collected and sent for recycling.
- Production cost is very low.
- Its operated and manufactured is simple.

VIII. DISADVANTAGES

- Small vibration occurs due to wire brush wheel attachment.
- In order to avoid vibration the machine should be properly foundation with the floor.

IX. FUTURE SCOPE

In India, sewage drains are open. So people throw waste in sewage drains. Plastic bottles are used in most places and are thrown as such into the sewages. This project will be very useful in cleaning these areas. In future, it is possible to make it a fully automated system by the implementation of control algorithms. Thus, this project helps in making our nation clean and healthy.

X. CONCLUSIONS

Modern services are becoming polarized. With the emergence of more and more automatic terminal services, modern services are also gradually becoming unmanned. Thus this semi-automated sewage cleaning system helps in cleaning the sewage automatically and helps in decreasing the spread of diseases due to direct human intervention into the sewage. Since the system operation mainly depends on high level

programming, it can be extended as per requirements. This system is time saving, portable, affordable, consumes less power and can be made easily available so that can use this system whenever and wherever.

XI. REFERENCES

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