Automatic Waste Water Cleaning Equipment

Rupesh Kumar, Abhishek Ranjan, Deepak Kumar

Abstract— in this project the proposal concept is to replace the manual work in drainage cleaning by automated system. We know that water has a great importance in human being life, the water flow in drain full of wastes like polythene, bottles etc. The drains get blocked due to these wastes in water. Now a day's even through mechanical machine plays a vital role in all industrial applications in the proper disposal of sewages from industries and commercials are still a challenging task. Drainage are using for the disposal and unfortunately sometimes there may be loss of human life while cleaning the blockage in the drainages. The government also spends too much money to clean the drainages. To overcome this problem and to save the human life we implement design "Drainage water cleaner system". We designed our project to use this in efficient way to control the disposal of wastages and with regular filtration of wastages.This machine also uses solar voltaic cell for power supply.

Index Terms— automated system, polythene, sewage, solar voltaic cell, drainage, filteration, disposal.

1 INTRODUCTION

The Drainage water cleaner system are used to clean wastes from water like polythene,bottles etc. present in water .This can be used to over come the problem of filteration of wastes from water and it save the time and cost that spend on cleaning the drainage. As the industry setup increase in the environment the water coming from industries are full of wastes like polythene, bottles, and other materials and that water mix with the other water that are used by people and we know that that water is not good for the for health of people. So to overcome from these problems we can filter the water drainage water before it mix with other water.This type of filteration of water is called primary filteration. In this project we use DC or AC motor to run the system when power supply is available& the Equipment we used are motor, chain, driver, bucket, frame, wheel, sprocket gear, solidshaft etc.

2. EXPERIMENTAL APPRATUS AND PROCEDURE

The drainage water cleaner is used to clean the wastes of water like polythene, bottles etc in the drainages. This device work on Solarvoltaic and manually also. As the motor run by Solarvoltaic the primary shaft of machine run and we know that the primary shaft is connected with secondary shaft by the help of chain and Sproket gear.The filteration pannel having teeth to filter and lift the wastes from water are attach to chain. When the shaft run by the help of chain the wastes are lifted and droped into bucket attach to the back to the system. It can run without power only by moving the primary shaft.

- *Deepak kumar is currently working as a Assistant professor in shivalik college of engineering, Dehradun, India, PH-9897520966. E-mail: deepak123doon@gmail.com*
- *Rupesh kumar is currently final year student of mechanical branch in Shivalik college of engineering, Dehradun, India*
- *Abhishek ranjan is currently final year student of mechanical branch in Shivalik college of engineering, Dehradun, India*

3. ADVANTAGES

1) Maintenance cost is very low.
2) No need to purchase special machine for filteration.
3) It is easy to manufacture.
4) It is easy to operate.
5) It is compact and portable.
6) It can be efficiently used.
7) It can also run without power supply.
8) Its machine parts are easily available.

4. DISADVANTAGES

1) Vibration may occur due to loose parts attachment.
2) Corrosion may occur for long time using in water.

5. APPLICATIONS

1) It can be used to separate plastic, thermocol from sewage.
2) It can be used in plastic industries.
3) It is used almost in all types of drainage.
4) It can be used almost all type of industries.

5. 3-D DIAGRAM

Fig 1. Automated drainage cleaner.

6. COST ESTIMATION

S.NO.	COMPONENTS	QUANTITY	COST
1	Dc Motor	1	2500
2	Sproket	4	400
3	Chain	1	500
4	Solarvoltaic cell panel	1	4500
5	Shaft	2	200
6	Bucket frame	1	400
7	Wheel	1	200
8	Base and side frame	1	1000
9	G I sheet	1	300
10	Other small component	4	1900
	TOTAL COST		**12000**

7. MACHINE SPECIFICATION

1) 05 inch sprocket-4 nag
2) 30 inch chain -2 nag
3) DC supply gear motor
4) Voltage required – 230 volts
5) Photovoltaic Cell panel (40 Watt)
6) Upper and bottom diameter of shaft -25mm
7) 4 ball bearing- ID=19mm
8) Back side waste bin
9) Lifting mechanism attached on chain
10) G-I sheets

8. CONCLUSTION

The drain waste water cleaner machine is designed and manufactured by using gear changing and shaft coupling principle. It consist mainly DC or AC geared motor, shafts, waste removal plates, dust bin, bearings, sprocket and chains &wheel sprocket gear .Construction materials are easily available ,creates employment(construction and maintainence),simple to construct.