Study & Fabrication of Solar Based Trash Cleaner

Ashwin Kale\textsuperscript{1} Navnath Kadam\textsuperscript{2} Sachin Sagar\textsuperscript{3} Noufil Shaikh\textsuperscript{4} S. L. Shinde\textsuperscript{5}

\textsuperscript{1,2,3,4,5}Department of Mechanical Engineering
SKN Sinhgad Institute of Technology

Abstract—This project the proposed concept is to replace the manual work in drainage cleaning by automated system. Now-a-days even though automation plays a vital role in all industrial applications in the proper disposal of sewages 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 human life we implement a design “Automatic Drain Cleaning System”, we designed our project to use this in efficient way to control the disposal of wastages and with regular filtration of wastages, clearance of gaseous substance are treated separately and monitor the disposal in frequent manner.

Key words: Frame Bed, Chain Design, Shaft, Solar Panel

I. 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 is monitor by municipal. In this system we used motor, chain, driver, bucket, frame.

II. LITERATURE REVIEW

Sometimes, people are lazy and don't want to get up and find a trash can. They think that if they throw their cigarette out the car window, spit their gum on the sidewalk, let a few napkins get carried away by the wind, or toss an empty plastic bottle in the gutter, nothing will happen. After all, how can this one piece of trash cause any harm to our environment? Well, all this trash has to build up someplace and across the Pacific Ocean, and tests fish tissue to find out how much plastic is in their bodies and tissues. Then, when other fish eat the fish with the toxins inside their bodies, they absorb the plastic particles into their bodies, too. Plastic acts as poison, and millions of sea life have died already. The plastic works its way through the food chain, and without even knowing it, we humans might be absorbing the plastic particles from the fish we eat, too. The PCBs in the plastic in the fish cause people to get sick. This is why we have to protect our oceans, because the effects are huge and critical; our health is on the line!

Many people, including celebrities, are trying to help this urgent cause by getting people's attention on how important it is to protect the oceans. Many marine research organizations are also forming. One organization is trying to clean up the Pacific garbage patch by collecting the plastic in the patch, and turning it into diesel fuel. Edward Norton, a Hollywood star, did his part by telling the world to recycle plastic bags, since plastic bags are also in the ocean. He stressed the need to recycle, and how important it is to not litter. Charles Moore created the Algalita Foundation in 1994 to sample and study the Pacific garbage patch. The foundation examines plastic debris found in the ocean, samples the polluted ocean waters by the California coast and across the Pacific Ocean, and tests fish tissue to find out how much plastic is in their body. By collecting water samples, scientists are able to figure out the amount of plastic in a gyre and any raises of plastic or garbage in the water. By studying fish tissue, scientists discovered that one fish, a rainbow fish, had 84 pieces of plastic in its stomach. That is not healthy for the fish and we can prevent it if we do the right thing and take care of our oceans.

If we recycle garbage, and if we don't litter, then the oceans will be cleaner, and it will be better for the fish in the ocean and better for our health. Our life depends on the ocean, so we have to take care of it. Take the extra step to
dispose of your trash the right way and help rid the world of "litter-bugs!"

III. DESIGN CALCULATIONS

Power of shaft \((P) = \frac{(2\pi NT)}{60}\)

Where,

\(N\) = Rpm of motor shaft

\(T\) = Torque transmitted \((T = \text{Force} \times \text{radius})\)

Diameter of sprocket = periphery/\(\pi\)

IV. CONCLUSION

Solar based, trash cleaning machine is easy, effective, economical and environment friendly system to tackle the global crisis of the drainage cleaning. It has many advantages over present day technologies to clean spilled water. It can effectively clean the drain and save it from choking. The system can be automated and run on solar system making it greatly capable to survive on its own. Hence lots of human efforts are eliminated and hence collecting trash can get faster and efficient response. The hazardous effects of plastic inorganic are thus effectively reduced. Hence, Solar based, trash cleaning machine promises to be an important tool against global crisis of pollution.

REFERENCES

[1] Workshop Technology - Prof. Hazara & vol I & II Prof. Choudhari
[2] Production Technology - Prof. R. K. Jain