

Review Paper on Analysis & Fabrication of Garbage Removal Machine from Water Surface

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Abstract— The project emphasizes on design & construction of river cleaning mechanism. The system is successfully able to clean the floating solid waste over the river surface more efficiently. This system works towards its social aim of cleaning the rivers & other water bodies. The conventional & generally used method of cleaning or more precisely collecting the floating waste are manual or by means of boat etc. and are deposited near the shore of river. But these methods are risky, costly, time consuming and required major workforce. By considering all the parameters of water surface cleaning systems and eliminating the drawback of all the methods mention earlier, the water surface cleaning machine has been design and constructed which helps in river surface cleaning effectively, efficiently. The main aim of the project is to reduce the manpower, time consumption and thereby increasing the efficiency of the machine for cleaning the river. In this project, we have the operation of water cleaning with the help of motor, conveyor belt arrangement.

Keywords: Conveyor belt, D.C.Motor, Bearing, Garbage bin

I. INTRODUCTION

One of the major objectives of the project is to return at least few favors to our mother nature. As it is coated “Water is Life, Life is Water”, so there is huge need to preserve the few water resources we have. We all know that 71% of our earth is covered with water but to our disadvantage or bad luck or lack of technological advancement we cannot use it all. The only percentage we can use from overall water resources is 3, which involves rivers, lakes, ponds,

Wells, underground water sources and glaciers. This 3% is the only water which is life as far as human are concerned, as this is the only quantity that human can consume to break his thirst and live his life. Other 97% which resides in oceans and seas, for now is of no use due to lack of technological advancement. It is not like our technology is so down that it can't convert the ocean and sea water, so that to avail it to drink but, the capital and investment involving are of the charts & also the efficiency is of the charts but in the converse manner viz. very poor. Thus this technology of converting ocean and sea water into consumable will require further research & development. It can be developed and improved but, it will take at least a few decades to become a reality. But unfortunately on the other hand, during the past two to three decades water quality has deteriorated at a rapid pace. One of the major reasons for this is dumping of solid waste into the rivers, turning them to be a dirt drain. The Ganga and the Yamuna, the most sacred river of our county are no exception to it & also our reference the “Ulhas River” is a great example of the same. Thus nowadays we can see river sewage surface pollution is the biggest problem for our planet as only 3% of overall water sources are fit for human consumption further 97% is stored in oceans. So we want to

share our innovative idea of an advance river surface cleaning system enabled with air tube guider mechanism, which we call ‘The DAAG Design’ with the society. We make this project looking forward to the achievable dream of clean rivers. So our aim is to preserve the little quantity of water sources we have, thus we have designed & fabricated an advance Water body viz. River cleaning mechanism by taking “Ulhas River” as reference.

II. LITERATURE REVIEW

- 1) Mr. Nikhil S. Pisal. Proposed safe load for the chain and the ability of the same to withstand the use of Finite Element Modeling would be the core objective of the work. The design for the chain would be subjected to F.E Analysis to find the effect of loads (tension) on the link. An existing chain link was used for benchmarking the research work.
- 2) NDUBUISI.C.Daniels. Showed the Drainage system cleaner machine used to remove garbage and the drainage system cleaner has three major parts which are the Propeller, the Cleaner and the Pan all makes up for its effective functioning.
- 3) Shao-Wu-Zhang. introduced three drainage devices about the ceramic filter dewatering system. They compared the working processes of three drainage devices, and analyzed its future development. Modified the design according to the shortage coming of drainage equip and working mechanism of automatic drainage device.
- 4) Prof S.D.Anap. Showed blockage is the major cause of the pollution and flooding in the metro cities. They explained about the design of the cost effective, easy method to control the water level of the tank wirelessly and automatically. They have designed the drainage blockage detection system to avoid such problems.
- 5) James C.Y. Guo. Showed roadway sanding is a common practice in cold regions because sand increases the roadway friction when mixing with snow. This study also presented a maximization methodology by which the size of snow storage area can be determined by the diminishing return of sand recovery. In this study, a snow storage element is introduced to the renaissance project of a mountainous highway which is running through an environmental sensitive forest area in Colorado.
- 6) James C. Conwell, G. E. Jhonson proposed the design and construction of a new test machine configuration that offers same advantages over the traditional one. The incorporation of idle sprocket allows independent adjustment of test on length and preload.
- 7) N.Prabhushankar. The main aim of the proposed work was to remove drainage water by the pneumatic operated spring return reciprocating pump. Showed dewatering of

drainage is generally done using centrifugal pump, but using centrifugal pump is not much effective in complete removal of the suspended and heavy solids and also it consumes lot of electric power for its operation. Manual work can be reducing while cleaning.

- 8) Gregory Burgerl. Described the concept and software design of an innovative general purpose platform for network based model development and look at some of crucial computational design issues they included features such as the hot-start mechanism and the extension interfaces have proven to be extremely useful when linking city drain³ as a sub-model into larger software project. Described the concept and software design of an innovative general purpose platform for network based model development and look at some of crucial computational design issues.

III. GARBAGE COLLECTING MACHINE MODULE

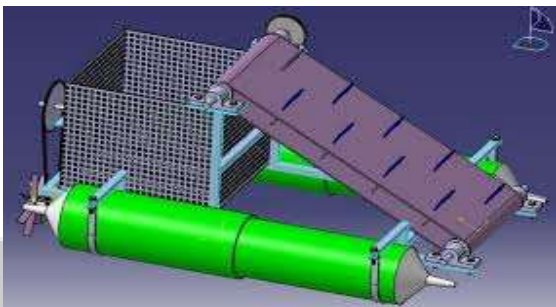


Fig. 1: Proposed of Fabrication Garbage Removal Machine

IV. CONCLUDING REMARKS

- 1) The use of light weight material of the conveyor belt gives more efficiency to machine
- 2) We can also set the command for returning to the primary position after the storage being full.
- 3) The use of water resistant electric DC motor can gives more efficiency for the conveyor.
- 4) The use of light weight PVC material for the frame for easy to floating on water surface.
- 5) This project "Garbage Collection from Surface Water of River" is designed with the hope that it is very much helpful to river cleaning.
- 6) On the basis of it design and estimating cost and availability it is very cheap and very useful for the society.

V. METHODOLOGY

The proposed work will be carried out with following steps.

- 1) Study of established theory of garbage collecting device from water surface.
- 2) Analyzing the data for design project.
- 3) Study of various parts of garbage collecting machine like Conveyor belt, Types of bearings, Electric DC motor, PVC material, Types of Sensors, Other factor.
- 4) Calculation of Geometrical Parameters
- 5) Actual Manufacturing of garbage collecting machine.
- 6) Component Selection for the project
- 7) Experimentation by assembling all components
- 8) Software analysis.
- 9) Comparison of results.

- 10) Exergy analysis of system

VI. CONCLUSION

This innovation is easy and less costly and has lots of more future scope. This project "Garbage Removal Machine From Water Surface" On the basis of it design and estimating cost and availability it is very cheap and very useful for the society. On the basis of these result we can conclude that it is an innovative method of minimizing manual stress and thus very much reliably stabilizing the in the river. The project carried out by us made an impressing task in the environmental purpose and it is very useful for the small scale works. Although this system able to collect the garbage from the river with human interaction. The objective of the project was successfully achieved.

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