ISSN:2348-

Volume-6 Issue-2

International Journal of Intellectual Advancements and Research in Engineering Computations

Design and development of Standalone Water Solid Waste Filter-Project Kumbhakaran

[1] J.Kishan,[2] Sanjeet Kumar, [3] B.Vasantha Kumar,[4]S.Lokesh

[1,2,3,]UG Students Asst.Professor,Electronics and Communication Engineering, VEL TECH Avadi, Chennai-600062,

Email: lokesh@veltechengg.com4

Abstract: **The water bodies across the world are facing the existential crises. The plastic solid waste from a major inhabit or of natural flow of water. The human settlements are regularly dumping off the garbage and refuse to the water bodies. This is a major environmental hazard and causes a degradation of water bodies and affects the overall food chain. Out of the garbage plastic occupies a major chunk of solid waste dumped with by 2020. The plastic staying at ocean break down into smaller granule which circulate all over the water bodies goes into the gills of fishes and leading to death and also comes to water supply connection which comes directly to our kitchen affecting all of us. The granule of plastic causes cancer if it goes to fetus of pregnant women it can cause abnormality of child and much more.The bin situated at the water surface and pumped the water at the surface then to water again. The water get sucked into the bin and bringing all the floating debris into bin. Water pumped through the bottom of the bin living debris inside which get raped in jute filter. Due to the strategic positioning, the wind and the currents bring the debris directly to the bin.**

Keywords: **Trash skimmer, Collector Bin, Jute Bag Collector**

I. INTRODUCTION

The Indian government has lunched so many project regarding ocean and river cleaning projects such as Clean Gnaga Project worth of Rs7000 crore are spent and still counting, Yamuna Clean-up project worth of Rs6000 crore are spent and the outcomes we all know that. At present 3 trillions of tons plastic are dumped in the water bodies and every person generating 54kg of plastic every year, the data given by the United Nations World Water Development. Our work aims on collecting the debris from the water bodies like Plastic bottles, Polythene bags, Aerosol cans, Garlands, Paint cans etc which harm the aquatic ecological system.

II. PREVIOUS SYSTEMS

Trash skimmer is widely used machine in India for cleaning rivers, nut due to the big size it does not go near the shore whir maximum debris get collected. In August 2015, it conducted its so-called Mega Expedition, in which a fleet of approximately 30 vessels crossed the Great Pacific garbage patch using manta trawls to measure the concentration, spatial and size distribution of plastic there.[[1,2] Researchers aboard mother ship R/V *Ocean Starr* reported sighting of much more large-sized plastic debris in the Great Pacific Ocean gyre than expected.[10] According to The Ocean Cleanup website, this expedition was conducted in preparation for a large-scale cleanup of the Great Pacific garbage patch, which it intends to start in 2020. Burning no-site method burns the oil on the sites where the spillage has occurred. The burning has to be done quite promptly before the oil spill can spread to a large area. But the most important disadvantage of such an on-site burning is that the exhaust that is released contains toxic particles that can cause damage to the ocean air in addition to the marine life form.Quantify the debris[4]; The Ocean Cleanup used a combination of human observers and sensors. They used a aircraft which flew at a low speed and low altitude for human researchers their CZMIL system (which uses LiDAR to create a 3D-image of the ghost nets) and the SASI hyper spectral SWIR imaging system (which uses an infrared camera to detect ocean plastic) to document ocean plastic pollution[3,5].

III. PROPOSED WORK

Fig 1: Collector Bin

The collector bin is the main frame which holds the main filter and as basin it interacts whole structure. The bin consist of the a Tapering cylinder of height 48cm and radius of 28cm.One end of the tapering cylinder is sealed of to a small outlet shown in fig 1.The jute collector acts a filter cum collection bag which filters out the water and traps the solid waste plastics. The jute being strong and recyclable possesses no harm .shown in fig 2

Fig 2: Jute Bag Collector

Fig 3: Flexible water leveler

A cloth sheet with floating mouth is used to make the mouth to water surface, This makes the bin fixed at a level whereas the level of mouth is aligned with water surface shown in fig 3.

Fig 4:Suction set

To draw the water in a whole suction aperture is developed ,The mouth of collector is fixed to the motor by means of a pipe, The water pump in turn placed in the shore. shown in fig 4

3.5 Stand

A non rusting stand is placed which in turn is placed in underwater bed this provides support and stability shown in fig 5.

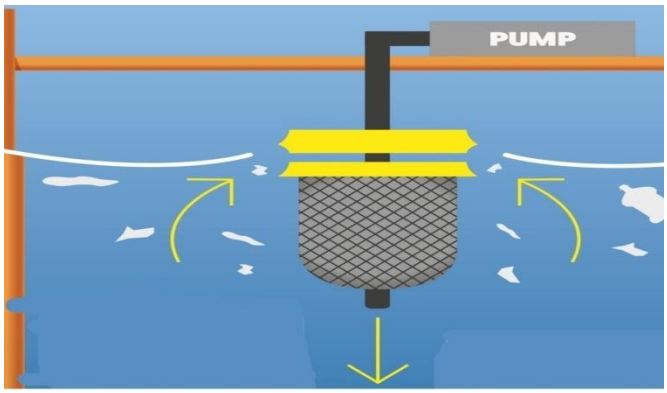

Fig5. shows the block diagram of project kumbhkaran

The steps involved in the processing of the above described model are as follows:

- Inside the bin we have to place natural filter "JUTE BAG "which can collect the floating debris.
- When this is full the municipal corporation staff can replace the filter.
- The bin can be easily monitored from the surface.
- The installation and design of bin is made easy for one person to handle.
- The suction is done by motor set which sucks water from bin.

EXPERIMENTAL RESULTS:

Fig 7: Experimental results

The bin is implemented and works as expected in still waters, The filler is useable for a week after which it needs replacement Most of the bigger to medium soiled waste debris are trapped. shown in fig 7.

IV. CONCLUSION

To remove solid waste from water bodies. Made out of recycled and eco friendly materials.The BIN is easy and effective for removing waste.90% of the body are made from sustainable materials.Poly bag, plastic bottle, oil, garlands, empty aerosol cans and paint cans can be easily filtered.It can work 24*7.Installation and replacement of filter is very easy.No need to enter into deep sea/river in person.

References

1.Mustafa Saad, Hossam Abdoalgader, and Muammer Mohamed, "Automatic Fan Speed Control System Using Microcontroller" 6th Int'l Conference on Electrical, Electronics & Civil Engineering (ICEECE'2014) Nov. 27-28, 2014 Cape Town (South Africa)

2 Vaibhav Bhatia an Gavish Bhatia "Room Temperature based Fan Speed Control System using Pulse Width Modulation Technique" International Journal of Computer Applications (0975 – 8887) Volume 81 – No5, November 2013

3. Dr. AntoBennet, M , Sankaranarayanan S, Ashokram S ,Dinesh Kumar T R,"Testing of Error Containment Capability in can Network", International Journal of Applied Engineering Research, Volume 9, Number 19 (2014) pp. 6045-6054.

4.Dr. AntoBennet, M ,Resmi R. Nair, Mahalakshmi V,Janakiraman G "Performance and Analysis of Ground-Glass Pattern Detection in Lung Disease based on High-Resolution Computed Tomography",Indian Journal of Science and Technology, Volume09 (Issue02):01-07, January 2016

5.Pratik S. Danage, Ajay B.Dongare, SangramsinhS.Dongare, Rahul B.Ghogare, Ganesh N.Khare "Automatic Breaking Sysetm Using Eye Blinking Sensor"Vol.2, Issue 2, pp(166-170),October2015- March-2016