DESIGN AND MANUFACTURING OF ELECTRICALLY OPERATED WASTE COLLECTING MACHINE FROM STAGNANT WATER BODIES/ PONDS ETC

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Introduction:
In developing countries, accumulation of floating waste such as plastic scraps, foam scraps or tree leaves on City Rivers or ponds can block water channel and also cause pollutions. Cleaning water surface is therefore an essential routine task. Waste cleaning is usually done manually with a lot of risk. This is due to the cost per one cleaning project and scheduling problem. Thus cleaning of floating wastages from rivers or ponds is important to make sure that water is cleaned and maintain the healthy environment.

Inspite of creating lot of awareness, people use to throw the wastes into to the ponds which in turn decomposes day-by-day and causes lot of diseases. As manual cleaning of such ponds involves lot of risks, as the person can get infected. Also there is a huge risk for endangered aquatic species. Inspired by a lake cleaning project in India, this project is a compact Electrically Operated Waste Collecting Machine from Stagnant Water, Ponds etc. designed such that it is suitable to clean wide range from medium size pond to average size lake.

Objectives:
- To make a low cost waste accumulation and disposal concept.
- Designing will be carried out for portable and mobile machine.
- The concept of proposed machine is to clean the stagnant water bodies/ponds without actually getting into the water.
- To maintain clean and healthy environment.

Methodology:
The system consists of a floating device which consists of rectangular floating structure, the floating is provided with polyethylene foam placed at the bottom which can float the entire structure more flexibly while navigating through water. It will have a trash tank on the top of it which is placed at the center in order to balance the weight; the trash
tank is in tapered shape in order to accumulate more wastes. The top view and isometric view of the proposed model as shown in figure 1 and 2 respectively.

The device will be moved by two custom made propellers which are driven by motors and power is given through 12V DC acid battery, the propellers are placed one on each side of the structure and located at the center axis of the structure which provides more flexibility while navigating. At the front side of the system scooper is located by means of links and driven by motor. The waste accumulation and disposal of the same will be done by a scooper. The scooper will collect the wastes from the water and dumps it into the trash box. The whole system can be controlled by a Bluetooth controller so that the operator can do the cleaning being somewhere safe place on land.

Result:
- With successful implementation of this waste collecting machine system, the number of ponds can be cleaned easily and will minimize water pollution, as it collects the waste from the places where human reach is not possible.
- We can prevent a number of diseases formations from water as it cleans up the waste regularly before it decomposes.
- Reliable waste removal can be achieved as the controlling of the system is through blue tooth controller and the system operates without difficulty.
- Significant safety level for human beings is achieved as the system itself cleans up the waste without human being actually getting into the water.
- Portable & Mobile.

Conclusion:
A cost-efficient waste cleaning machine that can clean accumulated waste and dispose the same from stagnant water channel has been proven to work hence achieving the main objectives of this project.

Achieving the objectives means a success in addressing the problem statement. A waste cleaning machine has been designed, improved, and built.
Scope for future work:
- Implementation of camera with light source, so that cleaning can be done in the night time as well.
- Implementation of laser sensor for easily detect the waste and to make the device automatically move towards it.
- Total weight optimization.