IOT Based Unmanned Lake Cleaning Machine

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Abstract- *The most sacred river in the world and the national river of India "The Ganga River." The Ganga is the soul of India and is Holly River in India. If we look at current status of our national river it is very shocking we dump about 29crore liters of sewage in The Ganga which is loaded with pollutants, toxins. We also dump tones of municipal solid waste. The government Of India takes charge to clean rivers Ahmadabad, Varanasi, etc. All of us know about the Ganga Abhiyan. Similarly, the villages in all state of India which joint with small & big lake and maximum villages do not use the lake water for farming as well as drinking and daily uses due to the maximum amount of garbage present in the lake water. By taking this into consideration, Our main motive is to clean the lake water for that purpose we are making efficient lake garbage collector by using IoT operated boat. In this we are using IoT boat with the conveyor attached to it for collecting garbage from the lake. Also this shows the location of Boat by using GPS. Power to the Boat is from Solar Panel.*

Keywords- IoT, Solar Panel, GPS.

I. INTRODUCTION

Lakes are an important feature of the Earth's landscape. They are extremely valuable ecosystems and provide a range of goods and services to humankind. They are not only a significant source of precious water, but extend valuable habitats to plants and animals, moderate the hydrological extreme events (drought and floods), influence microclimate, enhance the aesthetic beauty of the landscape and offer many recreational opportunities. Lakes have a very special significance in India.

Pollution: For the last two decades, there has been an explosive increase in the urban population without corresponding expansion of civic facilities such as adequate infrastructure for the disposal of waste. Hence many people are migrating to cities, the urban civic services are becoming less adequate. As a result, almost all urban water bodies in India are suffering because of pollution and are used for disposing untreated local sewage and solid waste, and in many cases the water bodies have been ultimately turned into landfills. Although, there is a plethora of policies and acts for the protection and restoration of urban lakes and wetlands,

urban water bodies are in extremely poor condition. Their numbers are declining rapidly. For example at the beginning of 1960s Bangalore had 262 lake, now only 10 hold water. Similarly, in 2001, 137 lakes were listed in Ahmadabad city, and over 65 were reported being already built over (Excreta Matters, 2012). In Delhi in 2010-11 to check the changes in 3 water bodies in last 10 years the status of 44 lakes was ascertained and it was found that 21 out 44 lakes were gone dry due to rapid urbanization and falling water tables (Singh & Bhavnagar, 2012).

Current Institutional Arrangements for the Protection of Lakes in India Government Institutions: Technically, in urban areas, water bodies are owned by land owning agencies. However, their survival and protection depend on the role of a number of other institutions /agencies such as Ministry of Water Resources, Ministry of Environment and Forests, Agriculture Ministry, Fisheries Ministry and other local authorities, i.e., Municipal Corporations, Development Authorities, Tourism Department, Water Supply Boards, etc. At the Central Government level, Ministry of Environment and Forests (MoEF) plays an important role in restoration of lakes in India under its initiative called National Lake Conservation Plan (NLCP) developed in 2001 specifically for the protection and management of lakes. Non Government Organizations: Apart from government bodies, a number of national and international non-government organizations such as WWF, UNDP, UNEP, ADB. World Bank and many other small local organizations/Citizen Groups such as NeelaHauz Citizen Group in Delhi and Save Urban Lakes in Bangalore, are also involved in lake conservation and restoration. One of such examples of lake restoration involving local NGOs is restoration of Hamirsar Lake in Bhuj, where the local NGOs worked together with the municipality to restore the lake. These organizations primarily provide technical and financial assistance for the upkeep of lakes and wetlands.

A clear vision regarding the level of rejuvenation of water bodies is recommended. In order to make a productive use of limited available resources, it is important to determine an acceptable level of restoration of lakes

II. WORKING PRINCIPLE

In this proposed paper the Lake cleaning is carried out by a Conveyor belt which is mounted at front side of the boat, and the garbage and waste material is picked up by the conveyor belt and dropped in the storage tank.

All the operations of boat are carried out by the power provided by the solar panel. Same power is stored in the battery, that is to be used when power is not generated from the solar panel.

The boat is provided with GPS system ,which is used to track the boat in real time.

The boat is moved in lake or river with the help of two 12V DC motors of 100RPM and this motors are provided with wheels. The power is provided by

Tthe solar panel and in case of shortage of power the battery takes charge and the Battery is charged with the help of same solar panel.
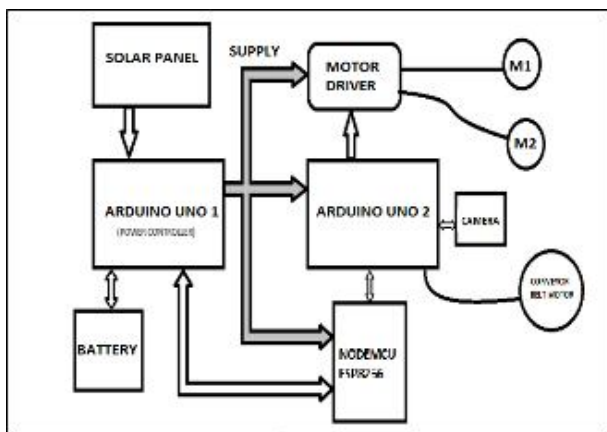

Fig 1: Block diagram of the control system of the boat

Here the Boat is controlled by IoT that is Internet of Things. The entire movement of the boat is controlled by the mobile App, that is Blynk Androide Mobile Application

III. APPLICATIONS

The main motive of this boat is to clean the Lake and River, this boat can also be used at the time of any Disaster and this boat can also be used for Surveillance and Border Inspection.

IV. ADVANTAGES

The Proposed Project is IoT controlled and it's Efficiency is High Compared to Traditional Method. This boat takes use of solar energy for its operations to be carried out and it collects many types of waste with less human interference and Disposal of waste is Easy

V. LIMITATIONS

As our proposed project is fully based on IoT which requires continues connection of Internet but in India the Network is not Available everywhere.

VI. CONCLUSION

About 71 percent of the Earth's surface is water-covered and only about 0.3 percent of our fresh water is found on the surface water of lakes, rivers, and swamps. In developing countries, 70 percent of industrial wastes are dumped untreated into waters, polluting the usable water supply. On average, 25 million tons of fertilizers and chemicals are used each year. Lake cleaning Boat was designed with an intention of clean the water debris floating on the lake, by using our boat we can collect many floating wastes like plastic bottles, bags, flowers without any human interference and then dispose off the waste easily, one can clean the lake just by operating it with the help of remote control. Also, this can help in reducing the water pollutants to a certain extent. The major advantage is the safety provided by the setup, that is one need not risk his life while he is cleaning the lake and we just need one person to control the Boat.

VII. ACKNOWLEDGMENT

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