



e-ISSN: 2319-8753 | p-ISSN: 2347-6710

IJIRSET

International Journal of Innovative Research in
SCIENCE | ENGINEERING | TECHNOLOGY



INTERNATIONAL JOURNAL OF INNOVATIVE RESEARCH

IN SCIENCE | ENGINEERING | TECHNOLOGY

Volume 13, Issue 3, March 2024

ISSN INTERNATIONAL
STANDARD
SERIAL
NUMBER
INDIA

Impact Factor: 8.423

 9940 572 462

 6381 907 438

 ijirset@gmail.com

 www.ijirset.com



Canal Waste Management

**Harshad Vedpathak, Om Aglave, Rohit Kamble, Chris Joseph, Dhairyashil Gaikwad,
Mahesh Gaikwad, Ms.Aminabi Ansari**

Department Of Civil Engineering, Jayawantrao Sawant Polytechnic College, Hadapsar, Pune, India

Associate Professor, Department of Civil Engineering, Jayawantrao Sawant Polytechnic College, Hadapsar, Pune, India

ABSTRACT: canals serve as vital waterways for transportation, irrigation, and drainage, yet they often face the challenge of accumulating waste and pollutants, compromising their ecological health and usability. This abstract explores the implementation of “remote controlled canal cleaning boat” as an innovative solution for managing waste in water channels. Canal cleaning boats, equipped with advanced technology and efficient waste collection systems, offer a sustainable approach to remove floating waste, plastic pollution, vegetation and other contaminants from canals. By utilizing these specialized vessels, authorities can enhance water quality, mitigate flooding risks, and preserve the biodiversity of aquatic ecosystems. This abstract highlights the significance of canal waste management through the deployment of canal cleaning boats, emphasizing the need for proactive measures to safeguard the sustainability of urban and rural water networks.

KEYWORDS: rubber conveyor belt, electric motor, remotely controlled, hydraulic transmission, amphibious vehicle system

I. INTRODUCTION

The remotely operated canal cleaning machine. In response to the pressing issue of canal waste management, our innovation offers a transformative solution designed to efficiently collect floating waste and vegetation in canals ranging from 5 to 6 meters in width. Equipped with an amphibious vehicle system, our machine seamlessly operates on both water and land, ensuring comprehensive waste removal regardless of terrain. Its conveyor mechanism, paired with a hydraulic transmission system featuring a convertible conveyor ramp, optimizes cleaning operations, even in narrow canal pathways inaccessible to traditional excavators. Beyond its mechanical prowess, our project embodies a commitment to sustainability and community welfare, promoting cleaner, healthier waterways and enhancing quality of life for canal-dependent communities for different purposes. In essence, the remotely operated canal cleaning machine represents a harmonious blend of technological innovation, environmental stewardship, and societal impact, paving the way for a future of cleaner, more resilient canal systems and sustainable development.

II. RELATED WORK

Canals often face significant challenges related to waste accumulation, posing environmental and aesthetic concerns for local communities. Inspired by real-life observations of the growing pollution problem in water bodies, this study presents the development and implementation of an automated waste collection system designed specifically for canal environments. Drawing insights from the behaviour of floating waste and vegetation observed in canals, the system employs a combination of sensor-based navigation, remotely operated, and conveyor systems to autonomously collect and remove floating waste & vegetation from the water surface. Through field trials conducted in partnership with local municipalities, the effectiveness and efficiency of the system were evaluated, demonstrating promising results in terms of waste removal rates, operational reliability, and environmental impact. This research contributes to the ongoing efforts to address water pollution challenges and promote sustainable management practices for canal ecosystems.

III. METHODOLOGY

Canal cleaning machine is used for cleaning of canal floating waste & vegetation, it has amphibious vehicle system due to which machine can work both water & land regardless of terrain. It collects the waste & vegetation from the canal and collected in the storage area provided on both sides which helps machine to gain more stability due to floating of light weight waste in it. First of all the machine is lowered into the water, its remote control and navigation are checked whether it is working or not, the machine is switched on and the floating waste and water leaves in the canal are started to be removed. After the storage capacity is full, the waste is collected from the machine and it is collected and disposed of.



fig-5.1 floating waste in canal



fig-5.2 vegetation in canal

IV. EXPERIMENTAL RESULT

1. The machine successfully removed a significant amount of floating waste, including floating plastic waste, bottles, and other pollutants, from the canal surface.
2. The machine's design and functionality allowed for the efficient removal of overgrown vegetation, such as algae and aquatic plants, which often contribute to canal blockages and water quality issues.
3. During testing, the machine demonstrated consistent operational performance, effectively navigating the canal's waterways and reaching areas that are challenging to access manually.

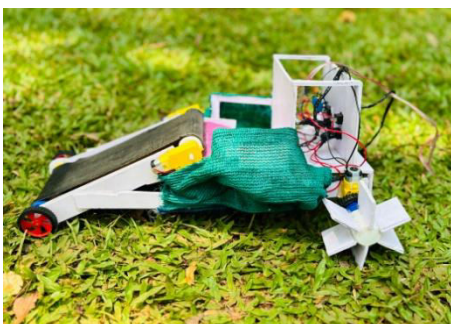


FIG- 5.1 CANAL CLEANING MACHINE



FIG-5.2 CANAL CLEANING MACHINE



Fig-5.3. 3d modelling

IV. CONCLUSION

The remotely operated canal cleaning machine offers a cost-effective solution that reduces manpower requirements. By utilizing remote control technology, this innovative machine streamlines cleaning processes, resulting in significant operational cost savings. Additionally, its remotely controlled mechanism enhances safety by minimizing human presence in hazardous canal environments.

REFERENCES

1. U.s. department of the interior bureau of reclamation, “canal operation and maintenance” march 2017.
2. Environmental services bureau 200 southern boulevard, new-york, “how to identify illegal discharge and dumping”- sep 2018.
3. Khamzat abdulmazhi, “analysis of the reclamation canal conditions and cleaning methods”july 2021.
4. Saifali sayyad “design and fabrication of river cleaning machine”-may 2019.
5. Australian dental journal 52, s52-s63, 2007, “the principles of techniques for cleaning root canals”.
Urbanstreets,," accident analysis and prevention, vol. 24



INTERNATIONAL
STANDARD
SERIAL
NUMBER
INDIA



INTERNATIONAL JOURNAL OF INNOVATIVE RESEARCH

IN SCIENCE | ENGINEERING | TECHNOLOGY

 9940 572 462  6381 907 438  ijirset@gmail.com



www.ijirset.com

Scan to save the contact details