

# River Cleaning Machine

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**Abstract:** In this paper the aim of this machine is to lift waste debris from the water surface and dispose of it within the tray. The cleanliness and hygiene of water is important since it is a basic need for all living beings. Various traditional methods are used to clean the water which is polluted due to waste from industry, sewage waste, garbage waste etc. This problem should be considered as serious and technology should be implemented to reduce this severe problem. IOT technology which has the ability to track and control the entire process is utilized as part of the integrated system. The watercraft was developed in response to the need for cleaning contaminants in the rivers territory and to meet the requirement of working in locations other than the seaward zone, providing more options for the use of cleaning trash and waste from the aquatic environment.

**Keywords:** Arduino Uno, motor, Driver IC, Wheels, Remote control etc.

## I. INTRODUCTION

The most objective of this paper is to develop a system to clean the thrash from surface of water bodies using arduino uno to ease the method for cleaning and also result in saving of time and work requirement. Status of machine is controlled by remote from a certain distance. Thus, it also reduces pollution due to garbage in water bodies. The river surface cleaner using machine can be designed by making use of hardware such as arduino, conveyor etc. This could connect with remote. Here we are focusing on less power consumption and more performance device. So, we are using arduino uno which is more suitable with our requirement. This machine is really advantageous for reducing the water pollution of river caused by human activities or waste disposed by other peoples.[1]

## II. METHODOLOGY

A. *Hardware:*

I. *Block diagram:*

In this paper a simple River Cleaning machine could collect floating debris using a conveyor belt driven by a motor controlled by the Arduino uno. The machine movements like Forward, Reverse, Left and Right are controlled by the remote motor driver are used for Controlling DC motors for conveyor belt. DC motors Provide movement and power for the conveyor belt. Power source battery pack for sustainable operation. Arduino program is written to control motor movement and conveyor movements.

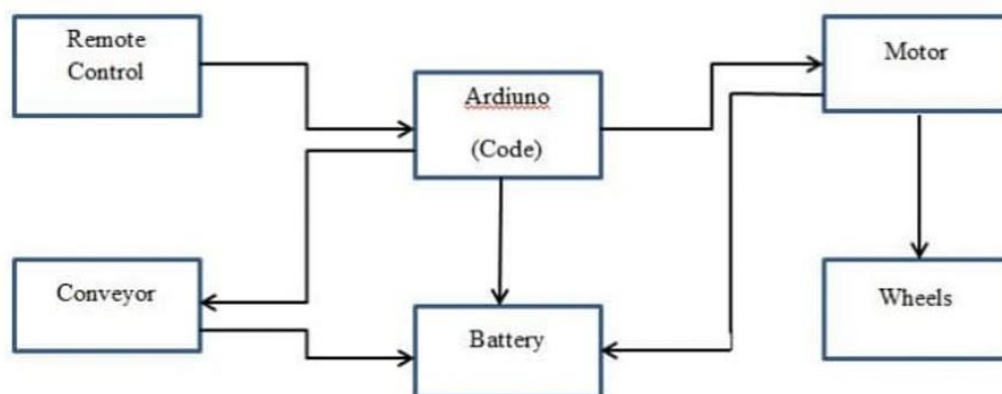


Fig. I. Block diagram

- I. *Microcontroller (arduino uno)*: The board has 14 digital I/O pins (six capable of PWM output), 6 analog I/O pins, and is programmable. It can be powered by the USB cable or by an external 9-volt battery, in spite of the fact that it accepts voltages between 7 and 20 volts.
- II. *Motors*: three dc motor of 10 rpm are used they have compact size, customized shaft direction high durability, waterproof, long life span higher speed range.
- III. *Conveyor belts*: general-purpose rubber is the most common type of rubber conveyor belt and black rubber conveyor belt, thickness is 4 mm to 20 mm.
- IV. *Battery*: an electric battery is a gadget comprising of at least one electrochemical cells with outside associations gave to control electrical gadgets battery voltage is 12v & battery capacity is 7ah
- V. *Wheels*: this wheel is connector to a motor and motor is fixed to a device. Whenever we want to move a vehicle on a river or water, then we are rotating specified motors due to that rotating wheels the vehicle will move forward, backward, left or right.

- B. *Software:*  
II. *Flowchart:*

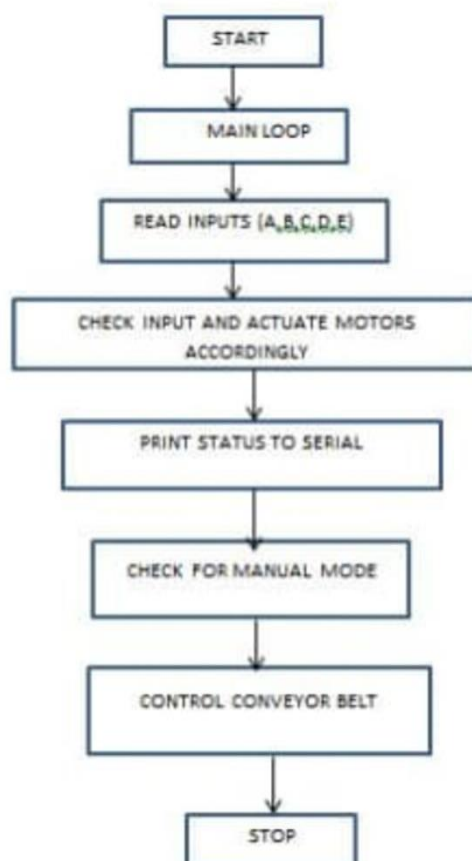


Fig. II. Flowchart of proposed system

- C. *Result:*
- I. *Design Calculations:*
  1. Battery - 12v/7.5AH
  2. Wheels - 6 approx. 100 to 120 mm.
  3. PVC Pipe – Loft 4<sup>1</sup> pipe
  4. Surface Plate - 3<sup>1</sup> x 2<sup>1</sup> ft. Wood or fibre
  5. Debris Collector - 2<sup>1</sup> x 2<sup>1</sup> ft. Wood or fibre
  6. Conveyor – 3<sup>1</sup> x 1 ft.
  7. Leakage insulating material for example silicon 4<sup>1</sup> PVC elbow .



Before

After

### III. CONCLUSION

A machine will lift the waste surface debris from the water bodies, this will ultimately result in reduction of water pollution and lastly the aquatic animal's death to these problems will be reduced. The main aim of the project is to reduce the man power, time consumption for cleaning the river.

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