AQUA TRASH COLLECTOR

A report submitted in partial fulfilment of the Academic requirements for the award of the degree of Bachelor of Technology

Submitted by

MANAS CHHATWAL (21H51A0512)

B HARI CHARAN (21H51A0532)

KURAKULA SHAILESH (21H51A0566)

GUNNALA AKHILA (21H51A0581)

THATIKONDA AKHILA (21H51A05C8)

BACHAWAR VINITHA (21H51A05D2)

UNDER THE COURSE

SOCIAL INNOVATION & PRACTICE

EXPLORE TO INVENT

CENTRE FOR ENGINEERING EDUCATION RESEARCH

CMR COLLEGE OF ENGINEERING & TECHNOLOGY
(Autonomous)
(NAAC Accredited with 'A+' Grade & NBA Accredited)
(Approved by AICTE, Permanently Affiliated to JNTU Hyderabad)
KANDLAKOYA, MEDCHAL ROAD, HYDERABAD-501401

2022-23

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CERTIFICATE

This is to certify that the report entitled **"AQUA TRASH COLLECTOR"** is a bonafide work done by **MANAS CHHATWAL(21H51A0512), B.HARI CHARAN(21H51A0532), KURAKULA SHAILESH(21H51A0566), GUNNALA AKHILA(21H51A0581), THATIKONDA AKHILA(21H51A05C8), BACHAWAR VINITHA(21H51A05D2)** of II B. Tech, in partial fulfilment of the requirements for the award of the degree of Bachelor of Technology, submitted to Centre for Engineering Education Research, CMR College of Engineering & Technology, Hyderabad during the Academic Year 2022-2023.

(Names of the Project Coordinators) **Head (CEER)**

1.SK. ASMA Asst. Professor, CSE Department **B SURESH RAM**
2. B. KONDALU Asst. Professor, CSE Department
3. B. BALA KRISHNA Asst. Professor, EEE Department

DECLARATION

We, the students of II B. Tech of Centre for Engineering Education Research , **CMR COLLEGE OF ENGINEERING & TECHNOLOGY**, Kandlakoya, Hyderabad, hereby declare, that under the supervision of our course coordinators, we have independently carried out the project titled **"AQUA TRASH COLLECTOR"** and submitted the report in partial fulfilment of the requirement for the award of Bachelor of Technology in by the Jawaharlal Nehru Technological University, Hyderabad (JNTUH) during the academic year 2022-2023.

Name	Roll Number	Signature of the students
MANAS CHHATWAL	**(21H51A0512)**	
B HARI CHARAN	**(21H51A0532)**	
K. SHAILESH	**(21H51A0566)**	
GUNNALA AKHIKLA	**(21H51A0581)**	
THATIKONDA AKHILA	**(21H51A05C8)**	
BACHAWAR VINITHA	**(21H51A05D2)**	

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We own all our success to our beloved parents, whose vision, love and inspiration has made us reach out for these glories.

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ABSTRACT

"**AQUA TRASH COLLECTOR**" is basically focuses on design and fabrication of river waste cleaning machine. The work has done looking at current situation of our natural rivers which are dump with core litres of sewage and loaded with pollutants, toxic materials, debris. The government of India has taken charge to clean rivers and invest huge capital in many river cleaning projects like Namami Ganga, Narmada Bachao and many major and medium projects in various cities like Ahmadabad, Varanasi etc. By taking this into consideration, this machine has designed to clean river water surface.

Nowadays almost all the manufacturing process is being atomized in order to deliver the product at faster rate but also at higher cost. Automation plays an important role in when it comes to smart work. In this project we have fabricated the app-based river cleaning machine. The main aim of the project is to reduce the man power and time consumed for cleaning the river. In this project we have automated the operation of river cleaning with the help of motors drive arrangement

Keywords: Arduino based Controller Atmega 328P, L298N Motor driver, Trash collector, Conveyor belt, Solar panel, Rechargeable Battery, Holder (Battery),DC Dual Shaft BO Motor, Bluetooth Module, Arduino RC App,Wireless Connectivity.

CHAPTER 1

INTRODUCTION

Water is an important natural resource vital for all forms of life in this planet. Despite of having blessed with enormous amount of water, water pollution is a major crisis in many countries. As per 'Water aid', an organization striving towards attaining fulfilment in hygiene and water sanitation has reported that 80% of the India's water sources are polluted. Water bodies are being polluted by floating garbage, weeds, debris plastic, sewage, effluents, toxic materials from industries. Water pollution with floating garbage is a serious issue needs immediate attention in developing countries.

In Indian context, the union government is keen on projects such as 'Swachh Bharat' and 'Smart city' for achieving Clean and Smart India mission. Further projects like 'Namami Ganga', 'Narmada Bachao' focus towards rejuvenation of rivers through effective pollution control and management. River surface cleaning, to remove the solid floating waste is one of the prime objectives of the above projects. Indian government has invested enormous amount towards river cleaning project. As per the statistics of Central Pollution Control Board (CPCB), there has been a significant rise in water pollution in water bodies over the past few years.

Furthermore, the water quality index also claims that the river water is unfit for bathing, drinking and fishing. An article in "The Hindu' titled 'Cleaning up the Cauvery", describes the importance of rejuvenation of the river which is being contaminated by floating wastes and plastics. A report published in a newspaper state that, the state of Indian rivers is bad and worsening, owing to high levels of pollution. As a result, biological oxygen demand has dropped beyond the required limits. The current scenario of Indian rivers, calls for nationwide strategy for cleaning rivers.

Manual cleaning of water bodies is inefficient, time consuming, laborious and expensive. In addition, health and hygiene of the laborers doing manual cleaning becomes severely affected.

Health impacts also include musculoskeletal. intestinal and vector borne diseases in addition to injuries caused as a result of work-related accidents. This demands techniques, to automate the existing infrastructure for river surface cleaning, at low cost with minimal hardware used by layman and general public.

Hence to overcome this major problem Aqua trash cleaning machine is developed. This project aims to collect the waste from the water. This lake cleaning system uses proximity sensors for detection, DC motors for movement, Bluetooth module for interfacing with Arduino and mobile app. When the sensor detects static obstacle, the rotating blades start and the garbage is pushed into a bin which is placed on the cleaning machine. The performance of the baseline prototype model of the proposed system tested in a real time emulated environment, justifies the use of lake cleaning robot towards control and management of aquatic waste.

CHAPTER 2

LITERATURE REVIEW

Many researchers performed various experimental investigations on removing the trash from the water bodies but all of them were having many drawbacks and few gaps. There are few of the existing solutions which are having many existing gaps. Many solutions are given below and their draw backs.

Sharma; Dec (2011) “universal reverence to water” have stated that, in many religions of the world water is used to celebrate the occasion which causes pollution of water. This is hazardous for aquatic lives and make the water unusual. Due to which the concept of removing waste from water is arrived

H. Larsen, N. H. Ipsen and L. Almgren: In many countries, one of the many reasons the major reason behind water pollution is use of fertilizers in agricultures. To make the country pollution free the principle instead implemented is “best environmental practice”. The capability of people to make choice for corrective action implementation is mentioned. In last 2 decades the government has taken few actions on the river cleaning system. In the same year they have come up with some trash collector using conveyor belt and other propellors to reduce the labours and reduce risk while cleaning in rivers.

her boats are used in very large rivers so that they required only one person to monitor the boat and don’t require any other extra labours for clean

CHAPTER 3

PROBLEM DEFINATION

3.1: PROBLEM STATEMENT

Mostly many trash collectors are made to collect the waste materials on the surface of water. But many of them are made up of metal components and many other sensors which are very complicated. They are even not portable and cannot carry from one spot to other. The existing solutions are also very harmful to the aquatic animals and apart from that many other models are using the mesh like structure which may not remove the entire waste debris on the water. The main aim of the idea is to collect the trash from the surface of the river. But many of them are not fulfilling the main need. This made to make the things to be easily flown by making the Aqua trash cleaning machine which collects the waste debris that are floating on the surface of water by giving the instructions either left or right or forward and so on. By this implementation people will be overcoming with the labor works and complexity.

3.2: OBJECTIVES

- The Project aims to collect the waste debris from the surface of water which are very harmful to the aquatic life.
- Removing the waste materials from the river or pools is necessary but collecting them without harming the nature is the key aim.
- Making the use of conveyor belt and trash bin collection of waste materials become very easy.
- Keep safety of the aquatic life and collecting the waste debris.

3.3: REQUIREMENT ANALYSIS

ARDUINO UNO

Fig 3.3.1 Arduino UNO

The Arduino Uno is an open-source microcontroller board based on the Microchip ATmega328P microcontroller and developed by Arduino.cc. The board is equipped with sets of digital and Analog input/output (I/O) pins that may be interfaced to various expansion boards (shields) and other circuits. The board has 14 digital I/O pins (six capable of PWM output), 6 Analog I/O pins, and is programmable with the Arduino IDE (Integrated Development Environment), via a type B USB cable. It can be powered by the USB cable or by an external 9-volt battery, though it accepts voltages between
7 and 20 volts.

DC MOTOR(3-6V)

Fig 3.3.2 Dc motor(3-6v)

A DC motor is any of a class of rotary electrical motors that converts direct current (DC) electrical energy into mechanical energy. The most common types rely on the forces produced by magnetic fields. Nearly all types of DC motors have some internal mechanism, either electromechanical or electronic, to periodically change the direction of current in part of the motor.

9 VOLT BATTERY

Hi-Watt 9V Battery is the most commonly used and portable 9V battery. It is non-rechargeable and is a high capacity and low-cost solution for many electronic devices. It is based on Zinc Carbon Chemistry and can be used easily replaced if discharged just like any standard AA and AAA batteries. The battery can be used to power LEDs, Toys, Flashlight and Torch, electronic equipment like multimeter, wall clocks, or other devices with a 9V system. A battery snap connector is generally used to connect it with a breadboard.

Fig 3.3.3 9 Volt Battery

RECHARGEABLE BATTERY AND BATTERY HOLDER

Fig 3.3.4 Battery and Holder

The 3.7v lithium battery is a lithium battery with a nominal voltage of 3.7v and a full-charge voltage of 4.2v. Its capacity ranges from several hundred to several thousand mAh.

JUMPER WIRES

Fig 3.3.5 Jumper wires

A jumper wire (also known as jumper, jumper wire, jumper cable, DuPont wire or cable) is an electrical wire, or group of them in a cable, with a connector or pin at each end (or sometimes without them – simply "tinned"), which is normally used to interconnect the components of a breadboard or other prototype or test circuit, internally or with other equipment or components, without soldering. Jumper wires are of three types: male-male, female-male, female-female.

L298N MOTOR DRIVER MODULE

The l298N is a dual H-bridge motors driver which allows speed and direction control of two dc motors are at the same time. The module can drive dc motors that have voltages between 5v and 35v with a peak current up to 2A.

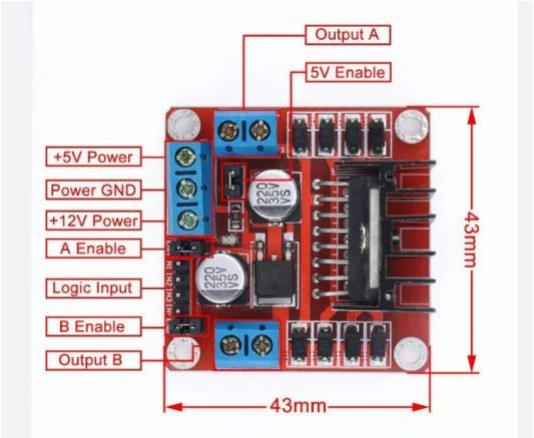


Fig 3.3.6 L298N motor

BLUETOOTH MODULE HC-05

The Bluetooth Technology manages the communication channel of wireless part. The Bluetooth modules can transmit and receives the data wirelessly by using two devices. The Bluetooth module can receive and transmits the data from host system with the help of host controller interface (HCI). There are three parts of this module which are android device (smart phone),a Bluetooth module transceiver and an Arduino ,all of which connected in a serial manner. Modules are used primarily to group objects definition together that have a common business purpose are used.

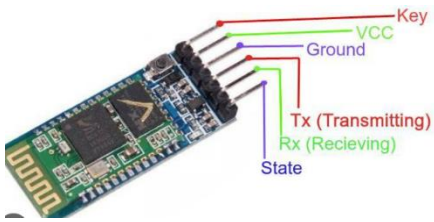


Fig 3.3.7 Bluetooth Module HC-05

CONVEYOR BELT

A conveyor belt is the carrying medium of the belt conveyor system. A belt conveyor system is one of many types of conveyor systems. A belts consists of two or more pulleys .One or both the pulleys are powered , moving the belt and the material on the belt forward. The powered pulley is called the drive pulley while the unpowered pulley is called the idler pulley.

Fig 3.3.8 Conveyor belt

PVC PIPES

PVC stands for Poly vinyl chloride .These pipes are a tubular like structure, or hollow cylinder, made of plastic. It is usually, but not necessarily, of circular cross-section, used mainly to convey substances which can flow -liquids and gases, slurries, powders and masses of small solids. They are familiar and versatile thermoplastic especially known as a piping and fitting material used for residential and commercial plumbing applications.

Fig 3.3.9 PVC Pipes

FOAM SHEETS

Foam board or foam core board is a strong and lightweight material that is easily cut with a sharp craft knife or picture farming mat cutter. It is commonly used for the mounting of prints and photography. They can also be used as a floating material in the water. That can float easily on the surface of water.

Fig 3.3.10 Foam Sheets

WHEELS

Wheels is a circular component that facilitates the motion by rolling together with the use of axle. In order for wheels to rotate, a moment needs to be applied to the wheel about its axis, either by the way of gravity by the application of another external force or a torque.

Fig 3.3.11 Wheels

SOLAR PANEL (7.5W-1.3V)

Fig 3.3.12 Solar Panel

A solar Panel or cell is a key device that converts light energy into electrical energy in photovoltaic energy conversion.

3.4: METHODOLOGY

The machine works with the help of the mobile app and when the waste debris present on the surface of water then by giving the instructions like left and right the machine moves. The waste debris will be collected into the trash collector that is placed on the machine. The motors will run according to the instructions given by the user. The four motors which are connected to the machine will be running whenever the instructions are given through the mobile app. The two motors which are connected to the wheels will helps the machine to move forward, backward and sideways. The remaining two motors are attached to the conveyor belt to collect the trash. The Bluetooth module is interfaced with the Arduino, that made to give the instructions from the mobile app.

How does trash collector will collect the waste materials from river surface?

- The trash collector is having a switch connected to conveyer belt and whenever turned on the conveyer belt start rotating and ready for the use.
- When the motor starts running which are connected to the conveyor belt so that it moves towards the obstacle and the it makes the obstacle to move on to the tray which has been placed on the main part of the machine.
- The trash collector is moved with the help of an app which is Arduino Bluetooth RC Control app which can be downloaded through PlayStore or App Store.
- By using Bluetooth Module, the interfacing between the Arduino and phone has begun to use and operate the dc motors of 6v each for directions and speed.

Improvisation

- The Aqua trash collector has some improvisation from the existing solution.
- The existing solutions has run with the help of joysticks.
- The Aqua trash collector is begin improved with the help of an app without joysticks.
- The existing models used non-rechargeable batteries that only works for few hours and easily can be wearable. We have used solar panel to recharge the batteries
- Instead, we used solar panels so that long hours working can possible.

CHAPTER 4

4.1: DEFINITION

An existing solution used for the removal of the trash is mainly useful for the removing the waste materials from the surface of the water bodies but typically they are implemented with the help of the propellors and many other sensors like turbidity sensor and PH sensors but in terms of the social need those sensors and all other metallic sensors are not as useful as the main aim to clean the water bodies. Because the main aim of the model is to clean the surface of the water bodies but they are not fulfilling the social needs.

This made an implementation process to make the Aqua trash cleaning machine which is very portable and light in weight so that any individual can carry it to clean up their pools and tanks even. This idea has been implemented so that many of them will have the idea about how to clean their tanks or pools or lakes nearby.

4.2: NEED OF AN AQUATIC TRASH COLLECTOR

Cleaning the surface of the water without harming the aquatic animals and weeds which are helping for the fishes and many other living organisms in the form of food is much riskier with the help of the existing solutions and models but this made an implementation to be done such that it will not affect the living organisms and may not even effect the aquatic weeds. By the help of the implemented machine the cleaning of the surface of the water will become easier and more portable by an individual.

4.3: JUSTIFICATION

The trash collector is made in such a way that it can collects the trash from the surface of the water even without harming the aquatic life and not even by the using the many metallic components. But many of the existing solutions are been having many gaps and the draw backs that made people to not having any idea of how to use them. Even many illiterates don’t know of how to use the machines that are been implemented before. This is the main reason for implementing the machine called as aquatic trash collector has the main aim to collect the waste materials without harming aquatic animals. This implementation is very easy to clean up the

trash and even any illiterates can have an idea by knowing just the instructions to be given from the mobile app.

4.4: PURPOSE

Generally, these machines are implemented to minimize the manual works and to reduce the heavy utilization of the metals. The cost of cleaning trash becomes less and a single person is enough to clean. They must know the direction to be given from the mobile app. Moreover, many of the existing solutions are been utilized more heavy metals which are very complicated and indeed very difficult to effort. But this aqua trash collector will bring the change in the implantation and working models.

4.5: SCOPE

- More batteries can be used.
- Can use fewer manual works.
- Energy Efficient for more amount of work.

CHAPTER 5

5.1: EXISTING SOLUTIONS

Automatic water cleaning machine

The working method of the existing solution is that it can be automatically runed without any single manual work but that has been implemented with help of solar panel and many other sensors like PH and turbidity sensors so that they will test the PH range of the water bodies up to the certain limits only and when it comes to the solar panel usage it may cause more cost and implementation becomes sometimes more difficult and the method of the cleaning process and many of them were unaware of the methodology . The IR sensor is used to detect the waste materials without any one's direction but sometimes this sensor may lead to damage the entire system. Mainly they have been used the strobe light which is used to on in the nights so that may not harm the fishes. But indeed, to clean the water trash there is no need of the utilization of many sensors and solar panels.

Fig. 5.1.1 River cleaning machine

Remote controlled water cleaning machine

Many of other existing solution is made so that they required at least one person is required to monitor the device by using RC (remote controller) that are used with the help of joysticks but it requires more interconnection from the device to joysticks with help of the antenna.

5.2: DRAWBACKS

- The existing solution is not portable.
- The existing solution is very expensive.
- The existing solution uses the Remote controller which is sometimes difficult to operate.
- In the existing solution more metal has been used which is very difficult to float on water even with the propellers.
- In the existing solution aquatic animals have very much risk.

5.3: PROPOSED DESIGN

In every area there are lots of lakes and ponds which are filled with more waste debris that are riskier and more hazardous to the living system because the plastic bags and bottles release more harmful gases and effects the aquatic animals. But few years back Indian government has come up with many ideas and even projects that clean the rivers such as Ganga and some other holy rivers and all. But most of them has failed and enable to implement the actual usage of the implementations. So, this made an idea for cleaning the trash. Actually, the proposed solution is Aqua trash collector which intern overcomes the gaps in the existing models. The trash can be collected with the help of conveyor belt and motors. The trash collector is runed with the help of motors and Bluetooth module which is interconnected with the help of the Arduino uno.

CHAPTER 6

IMPLEMENTATION

6.1: WORKING

The Aluminium/metal sheets is used to make the machine to move on the water surface to collect the trash which are floating on water surface. The conveyor belt is used to move the trash on to the machine and collect it into the bin. Four motors are been used in which two are used to run the conveyor belt and remaining are used to move the machine in forward direction that are attached to the wheels. The Arduino is used to interface the Bluetooth module with the L298N motor driver module. The Bluetooth is connected to the phone app and the machine is runned as per the instructions given.

It contains the four motor drives, two are for moving the wheels which are adjusted at the down parts of the machine and remaining two are fixed to the conveyor belt so that they will moves to collect the trash whenever an obstacle present in front of the machine. The machine can be worked with the help of an app so that anyone can use the machine to clean small rivers or pools. Instead of using the many batteries if we use single solar panel so that the energy is utilized well without wearable.

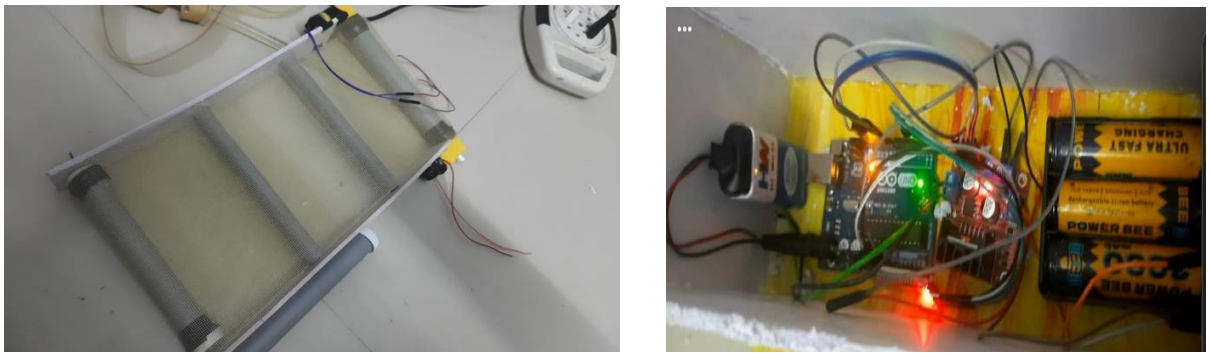
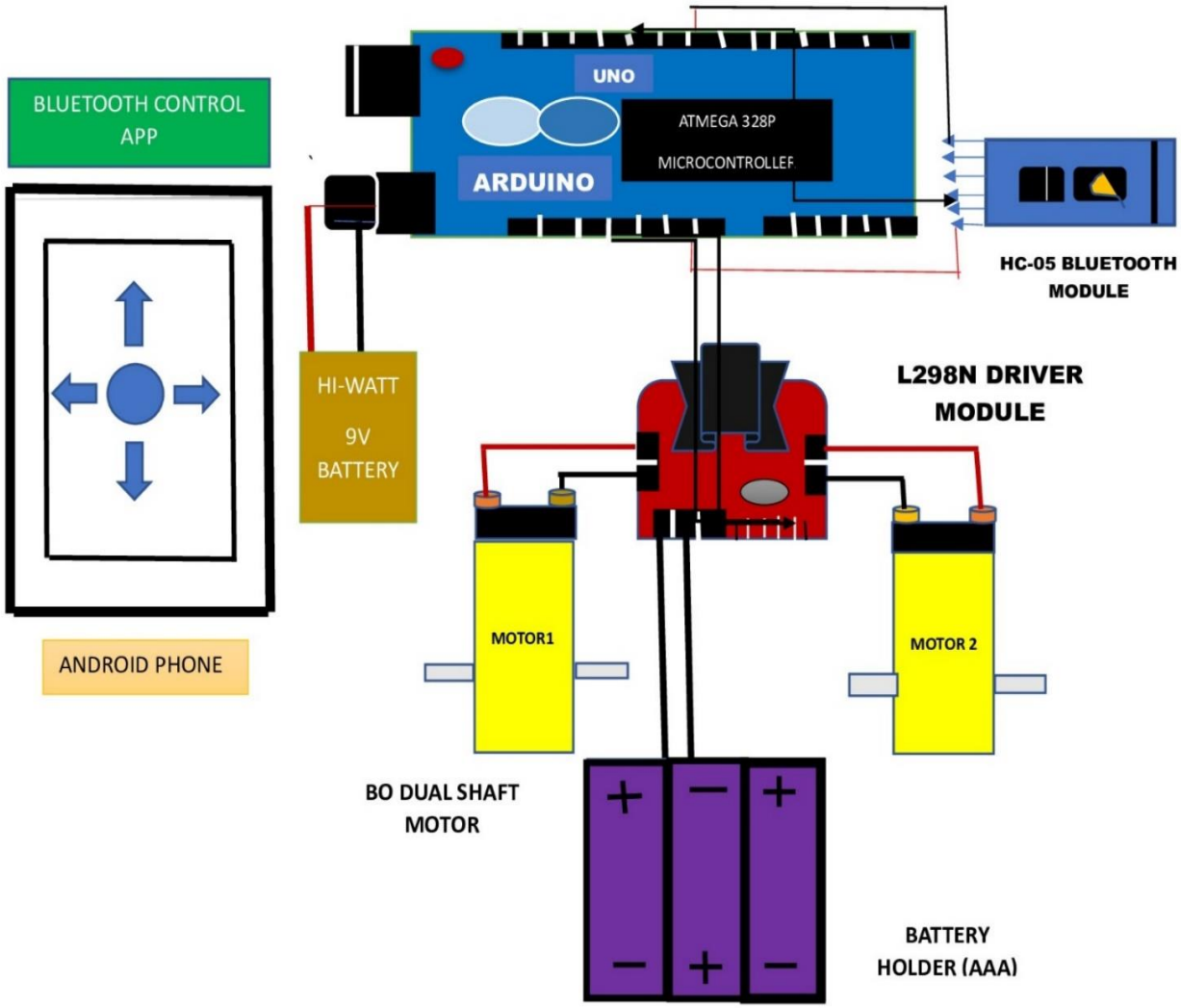


Fig. 6.1.1 The conveyor belt and Connections of interface and components

6.2: BLOCK DIAGRAM OR SCHEMATIC DIAGRAM



SCHEMATIC DIAGRAM OF COMPONENTS AND WORKING

6.3: PROTOTYPE AND BUSINESS MODEL

BLUETOOTH RC CONTROL APP

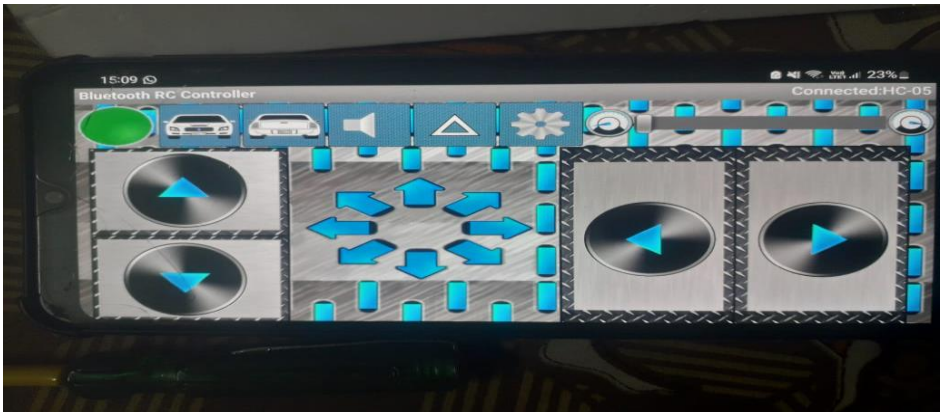


Fig 6.3.3 The mobile app instructions through Bluetooth

AQUA TRASH COLLECTOR BUSINESS MODEL

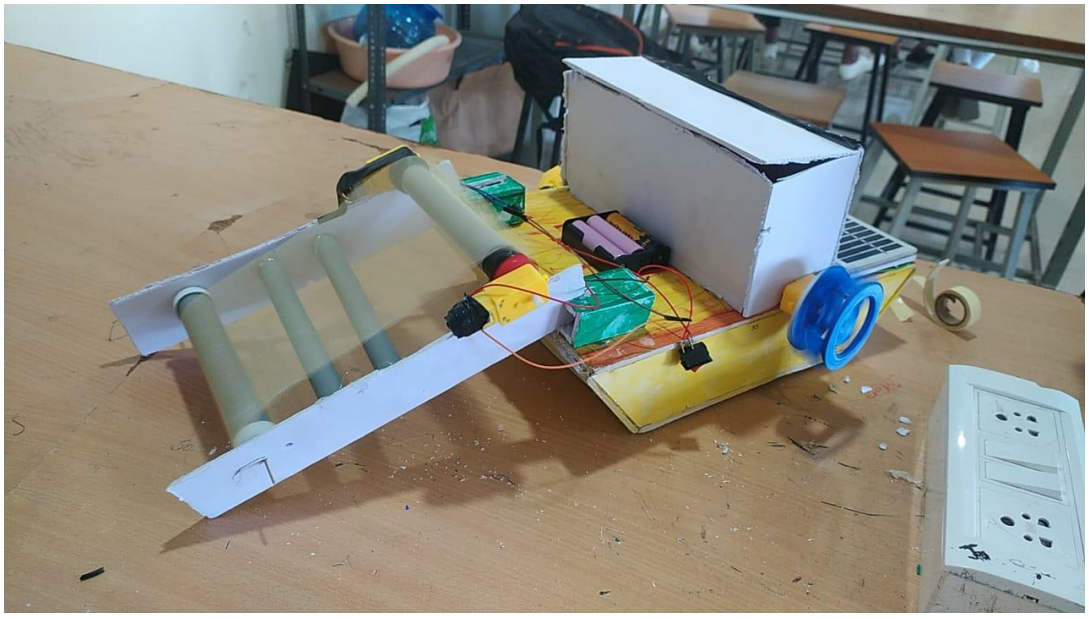


Fig 6.3.4 Aqua Trash Collector

CHAPTER 7

SOURCE CODE

```
int m1a =9;

int m1b=10;

int m2a=11;

int m2b=12;

char val;

void setup()

{

pinMode(m1a, OUTPUT);

pinMode(m1b, OUTPUT);

pinMode(m2a, OUTPUT);

pinMode(m2b, OUTPUT);

Serial.begin(9600);

}

void loop()

{

  while (Serial. available() > 0)

  {
```

```
val = Serial.Read();
Serial.println(val);
}
if( val == 'F') // Forward
  {
    digital Write(m1a, HIGH);
    digital Write(m1b, LOW);
    digital Write(m2a, HIGH);
    digital  Write(m2b, LOW);
  }
else if(val == 'B') // Backward
  {
    digital Write(m1a, LOW);
    digital Write(m1b, HIGH);
    digital Write(m2a, LOW);
    digital Write(m2b, HIGH);
  }
  else if(val == 'L') //Left
  {
  digital Write(m1a, LOW);
  digital Write(m1b, LOW);
```

```
  digital Write(m2a, HIGH);
  digital Write(m2b, LOW);
  }
  else if(val == 'R') //Right
  {
  digital  Write(m1a, HIGH);
  digital Write(m1b, LOW);
  digital Write(m2a, LOW);
  digital Write(m2b, LOW);
  }

 else if(val == 'S') //Stop
  {
  digital Write(m1a, LOW);
  digital Write(m1b, LOW);
  digital Write(m2a, LOW);
  digital Write(m2b, LOW);
  }
 else if(val == 'I') //Forward Right
  {
  digital Write(m1a, HIGH);
```

```
  digital Write(m1b, LOW);
  digital  Write(m2a, LOW);
  digital Write(m2b, LOW);
  }
else if(val == 'J') //Backward Right
  {
  digital Write(m1a, LOW);
  digital Write(m1b, HIGH);
  digital Write(m2a, LOW);
  digital Write(m2b, LOW);
  }
 else if(val  == 'G') //Forward Left
  {
  digital Write(m1a, LOW);
  digital Write(m1b, LOW);
  digital Write(m2a, HIGH);
  digital  Write(m2b, LOW);
  }
else if(val == 'H') //Backward Left
  {
  digital Write(m1a, LOW);
```

```
    digital Write(m1b, LOW);
    digital Write(m2a, LOW);
    digital Write(m2b,HIGH);
    }
}
```

CHAPTER 8

RESULTS AND CONCLUSIONS

8.1: APPLICATIONS

- The main application of our project is to clean up the water surfaces so that the river and pools maintains hygiene.
- This mechanism can be to collect the trash.
- It can majorly useful in many apartments and small canals which is used to remove the trash from the surface of the water bodies.

8.2: ADVANTAGES

- It overcomes the gaps in the existing solutions.
- This project is more economical.
- This is more efficient.
- This aqua trash collector is very easily portable and implemented easily.
- Water trash collector with a fewer human effort.
- For increasing the Bluetooth range which is of 10 meters initially we have added repeaters and antenna signals which transmit high frequency of radiations for longer distances

8.3: DISADVANTAGES

The main disadvantage of our project is that the removal of the trash is only up to the less distance only. And this cleaning requires at least one person to operate the mobile app that is interlinked with the help of Bluetooth module and Arduino uno. As well as our project cannot collect more amount of the trash from the surface of the water bodies it has limit that it can be bearable. Bluetooth module has a frequency range of 10 meters in distance. For that we have added antenna signals which increase the frequency up to 7.50GHz.

8.4: CONCLUSION

The main aim of our project is trash collector which can be runed with the help of single individual person so that by giving the instructions as left, right, forward and downward as shown in the source code. When the trash is present on the surface of water then the 2 motors which are placed at the two sides of a conveyor belt so that it pulls up the waste debris on to the collector bin and it may collect up to half kilo of the waste materials. Our project can be portable which is can be carried easily by anyone. This made our project to simpler usage than all other existing solutions. Even our project costs very less than more expensive implementations which are not even collects the waste debris more.

CHAPTER 9

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- transmitter.ieee.org This project makes the use of two Bluetooth modules, a magnetometer, motor driver, GPS module, portable 9 V battery, Accelerometer module, Proximity Sensor,
    - These Solar Cells Produce Electricity at Night - IEEE Spectrum
    - spectrum.ieee.org
- Researchers used radiative cooling to generate enough to power LEDs or charge a cellphone ... By taking advantage of the temperature difference between a solar ...
    - Conveyor Belt | IEEE DataPort
    - ieee-dataport.org
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    - IEEE Maker Project - IEEE Transmitter
    - transmitter.ieee.org
- For wirelessly connecting and controlling the motors:
    - mycohelper-firmware-environmental - IEEE GitLab
    - opensource.ieee.org
    - IEEE Concordia Arduino tutorial 2 - IEEE Delhi Computer Chapter

Car automation with smartphone. - The IEEE Maker Project

transmitter.ieee.org

CHAPTER 10

10.1 TEAM PHOTO WITH BUSINESS MODEL

10.2 POSTER:

CMR College of Engineering & Technology

(UGC Autonomous)

Kandlakoya , Medchal Road, Hyderabad 501401

Centre for Engineering Education & Research (CEER)

AQUA TRASH COLLECTOR

Project Objective

The main objective of this project is to collect the waste and the plastic trash which floats on the surface of water bodies causing harm to the aquatic life. As the world is moving ahead in technology and advancing by using wireless connectivity we have made a product that works with the help of Bluetooth connectivity and uses solar panel for recharging the batteries.

Existing Features

REMOTE CONTROL WATER CLEANING MACHINE

Many of other existing solution is made so that they required at least one person is required to monitor the device by using RC (remote controller) that are used with the help of joysticks and requires more inter connections

Identification of the Problem

GROUP PHOTO

NEED OF AN AQUATIC TRASH COLLECTOR

Cleaning the surface of the water without harming the aquatic animals and weeds which are helping for the fishes and many other living organisms in the form of food is much riskier with the help of the existing solutions and models but this made an implementation to be done such that it will not affect the living organisms and may not even effect the aquatic weeds.

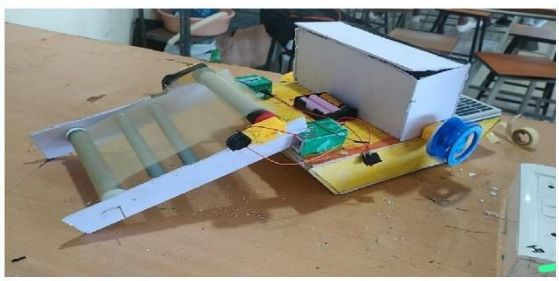
Gaps in existing solutions

- The existing solution is not portable.
- The existing solution is very expensive.
- In the existing solution more of the toxic materials are used which are harmful and releases poisonous chemicals into the water surface harming the aquatic animals.
- Easily damageable because of materials used to make it.

Required Materials

- Arduino UNO R3
- DC Motor(3-6v)
- Rechargeable Batteries 3000 mah
- L298N Motor Driver
- Bluetooth Module(HC-05)
- Conveyor Belt
- Solar Panel(7.5v)
- Jumper Wires

Business Model



Presented By

TEAM 3:

21H51A0512 MANAS CHHATWAL
21H51A0532 B HARI CHARAN
21H51A0566 KURAKULA SHAILESH
21H51A0581 GUNNALA AKHILA
21H51A05C8 THATIKONDA AKHILA
21H51A05D2 BACHAWAR VINITHA

PRESENTED UNDER THE GUIDENCE OF:

1.ASMA CSE/CEER
2.B.KONDALU CSE/CEER
3.B.BALA KRISHNA EEE/CEER.

10.3 ONE PAGE ABSTRACT:

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AQUA TRASH COLLECTOR

ABSTRACT

The projects aim to develop a mechanism for easy and portable way for cleaning the trash on the surface of the small rivers and pools. This project can be easily portable and low cost. It can minimize the labor works and can be only monitored with the help of a single person so that according to the given instructions like left, right, top, bottom the machine can move. Using the mobile app that can runed with the interconnections with Arduino uno and Bluetooth module.

DESCRIPTION

The project is mainly useful for apartments pools and small river cleaning. That reduces the risk of aquatic life and human lives which can be more hazardous while cleaning in the middle of the river.

The application uses –

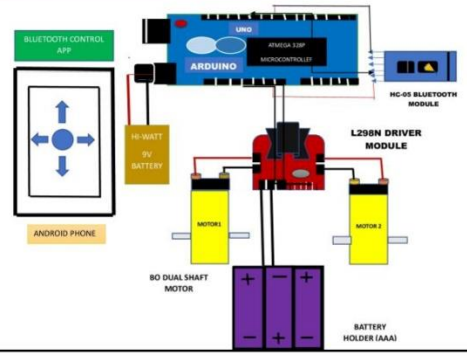
- The L298N Motor drive that controls the two motors simultaneously.
- The Bluetooth module that interconnects with the small devices like mobile phones.
- Solar panel auto recharges the rechargeable batteries whenever exposed to the sunlight

These are the main applications used for the implementation of the aqua trash machine is used to remove waste from lakes and ponds.

CONCLUSION

By the aqua trash collector people in the villages can clean up the small rivers and ponds which are been polluted with the plastic bags and bottles very easily. As it is portable, they can carry from one spot to the other and without having any risk to the aquatic animals and humans sometimes. Even our project costs very less than more expensive implementations which are not even collects the waste debris more. Our project can be portable which is can be carried easily by anyone. This made our project to simpler usage than all other existing solutions

SCHEMATIC DIAGRAM



FACULTY

1. Mrs. Asma (Asst professor)
2. Mr. B. Kondalu (Asst professor)
3. Mr. B. Bala Krishna (Asst professor)

TEAM DETAILS

1.	21H51A0512	–	Manas Chhatwal
2	21H51A0532	–	B Hari Charan
3.	21H51A0566	_	K Shailesh
4.	21H51A0581	_	Gunnala Akhila
5.	21H51A05C8	–	Thatikonda Akhila
6.	21H51A05D2	–	Bachawar Vinitha

10.4 TEAM DETAILS

	**Name** : Manas Chhatwal **Roll No** : 21H51A0512 **Email Id** : 21h51a0512@cmrcet.ac.in **Phone No** : 8247629922
	**Name** : Kurakula Shailesh **Roll No** : 21H51A0566 **Email Id** : 21h51a0566@cmrcet.ac.in **Phone No**: 9908452446
	**Name** : B Hari Charan **Roll No** : 21H51A0532 **Email Id** : 21h51a0532@cmrcet.ac.in **Phone No**: 7981896579
	**Name** : Gunnala Akhila **Roll No** : 21H51A0581 **Email Id** : 21h51a0581@cmrcet.ac.in **Phone No** : 9908452446

	Name : Thatikonda Akhila Roll No : 21H51A05C8 Email Id : 21h51a05c8@cmrcet.ac.in **Phone No** : 8374953459
	Name : Bachawar Vinitha Roll No :21H51A05D2 Email Id :21h51a0d2@cmrcet.ac.in Ph No : 7993281845