Smart Coin Collecting Robot

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Abstract- *In ancient times and pre indipendentindia the coins made up of copper, silver and gold. Where Silver, Copper and their alloys have many antimicrobial properties. Copper slowly dissolves in water and kill harmful microbes. Thus our ancestors had started a custom of throwing coins in river as rivers were the only source of water that time. If coins remain in rivers for a long time. Then it becomes beneficial for those who drink it. But now a days the coins made up of aluminium , stainless steel and some other elements which is not so good for health ,and thise elements not dissolve in water easily .But these days the unaware people throw coins in river by thinking it will bring good luck to them. In our project we make a boat which collect these coins ,for collecting coins we are using eunlectromagnet which can collect the coins settled on river bed. For doing this project we have gone through listed research paper given in literature survey, in which we have studied heavy metal contamination in Godavari river basin and global coin collecting market. But there is no survey available for river coin collection , so we are making boat for it ,where we are using sensor which gives signal when metal is detected, then metal attractes towards electromagnet . We are controlling boat by using android application which makes it easy to control and use for any person.*

I. INTRODUCTION

In It is very comman practice in india to throw coin in the river.especially in religious places without a second thought. As a custom that has been followed for centuries, the real meaning behind this simple act has mostly has been forgotten.some think throwing coin brings goddess of wealth.In ancient India,most civilizations flourised near rivers and where significant source of fresh water. The livelihood of people depended on these rivers, such as agriculture, irrigation , drinking etc. and these rivers were considered sacred and worshiped. As the rivers were the only source of water at the time ,having clean water was essential for survival .most currencies used then we're made of copper an element required by human body to maintain health. Once coin thrown in the river ,copper would slowly dissolved in he water and the person drinking it would have sufficient intake of the metal I. Their body for optimization of the metal .copperalso pulled down all the dirt in the river , allowing clean and fresh water to flow freely in top although present day currencies no longer have copper in them ,the age old custom throwing coins in the river still continuous till today , because of this the toxicity in river water is increasing and it no longer drinkable. In this situation our project is useful for reducing toxicity in water , in this project we are using sensor Arduino nano , bluetooth, motor ,motor driver, electromagnet, relays, servo motor etc .we are controlling our boat by using android application. The boat made up of thermocol which makes boat light and waterproof.

II. SUMMARY OF LITERATURE SURVEY

After analysing different paper about coin collection and river management , the first survey is about coin collecting market where people collecting coin as a hobby or for business purpose. Collectors usually prefer collecting coins which were used for a brief time in the past. The study of coins and other forms of currency is known as numismatics. It helps to Increase in disposable income and interest in collecting historic items has resulted in the rising sales of coins around the globe. The second survey is about heavy metal contamination in Godavari river basin. As after the industrial revolution, point sources from mining, municipal waste, industries and non-point sources from both agriculture and urban storm water runoff have collected in the water bodies. Because of this toxicity in water is increasing. After studying these different survey we known that there are different ways to collecting coins and decrease heavy metals in river ,but there is no survey we find about collecting coins inside the river. Our project is combination of these survey which helps to clean river and prevent increasing number in disposal coins from indian economy.

III. BLOCK DIAGRAM

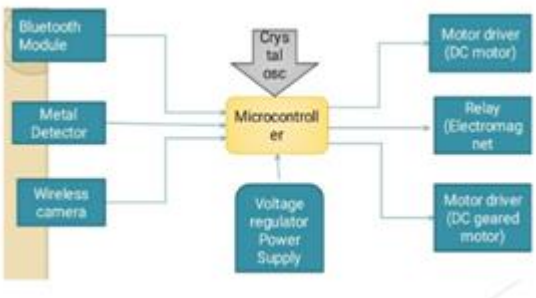

Fig 1 :- Block diagram

As shown in block diagram we are using microcontroller Arduino nano. The input device is Bluetooth module and metal detector. The output device is motor drive and relay. The voltage regulator is connected to microcontroller which automatically maintain a constant voltage level.

IV. CIRCUIT DIAGRAM

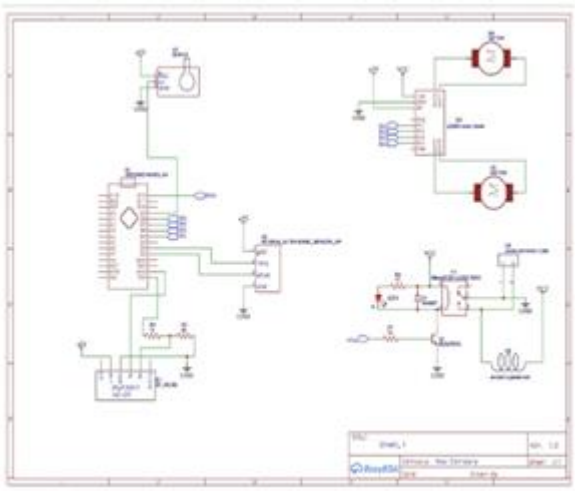

Fig 2 :- Circuit diagram

Working:-

As shown in circuit diagram here we are using Arduino nano microcontroller it's operating voltage is 5v. The digital input output pin D12 is connected to relay circuit, where the electromagnetic coil is connected. As we know the ralay is used to switch ON and OFF the circuit. Then the digital input output pines D8,D7,D6,D5 is connected to motor driver circuit. where the motor driver Ic output 1 and 2 connected to motor A and output 3 and 4 connected to motor B. Then input output pines of microcontroller D3 and D2 are connected to ultrasonic sensor which transmits and receive ultrasound.D9 pin is connected to servo motor for changing the direction of boat, and Dc motors are using for move the boat forward and reverse direction. The RXD and TXD pines of microcontroller are connected to blutooth where we can control the boat without making actual contact. We can control the boat by using mobile application or by using remote control system which makes boat easy to control.

V. FLOW CHART

Flowchart will consist of working of the hardware part according to the designed software. The UI and program for this project is designed in the arduino IDE, in C programming language. It will first take in the inputs from gesture sensor then the result will be shown on the OLED screen, and the motor will work accordingly. For the prototype, servo motor is used which will rotate clockwise for up-swipe and anti-clockwise for downswipe.t of

The UI on OLED display consist of 5 symbols numerical digit for floor number, up arrow for up-swipe, down arrow for down-swipe and door closed / door open. Although in prototype we have not used any sensors to detect the door closed or door open condition, as the memory of microcontroller was not enough.

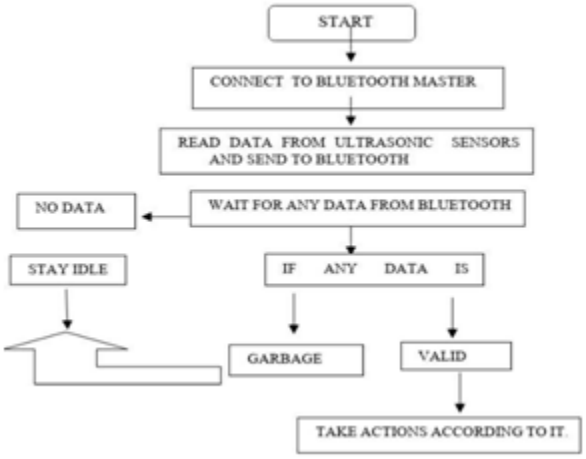

Fig 3 :- Flow chart

VI. SOFTWARE DESIGN

Which is software design, which includes our software requirements, flow process of the working of our project means how our project is going to work and code part of our project which is main part for the working of project because all the instructions which is required to give to any component is written in it and according to the instructions given, each component is going to work like moving electromagnet.

SOFTWARE TOOLS REQUIRED:-
ARDUINO IDE(for doing programming)
BLUETOOTH ELECTRONICS(APP)

Arduino IDE:- The Arduino integrated development envoirnment (IDE) is cross-platform Application for (Windows, macoS, Linux) that is written in functions form C and C++ . User written Code only requires two basic functions, for starting the sketch and main program loop, that are Compiled and linked with a program stub main(). We have used this software for writing our code By using C language, and this software provides a good platform to write code for our project, for That we have used Arduino.

2. Bluetooth electronics app:- Bluetooth electronics app inventor is a web application integrated Development envoirnment. It is free and open source software. We have used it for developing the App, which we have developed to control the system, means to on off the system, to control electromagnet.

VII. RESULT

When we tern ON the circuit the electromagnet starts making magnetic field which attractes the metal. The electromagnet successfully collect the coin inside the water .

VIII. CONCLUSION

In our project the priority is to collect the metal inside the river which makes river water toxic .Our project successfully collect the coin inside the water ,but our project is just a prototype that's why the distance of collecting coin is small. The project works outside the water but the magnetic coil heats fast that's why the project cannot work long time outside the water that can damage the circuit. Other than this our project works properly because of project cost is less some limitations occurs.

IX. FUTURE SCOPE

The metal detecting mechanism in our project is for small distance application .but in future we can use it for long distance as well by using long distance blutooth module and senser which works inside water for long distance .we can make it more easy by using water proof camera which makes detection process more easy, By using these all elements we can make project more active and accurate.

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