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## Tesla Curiosity Rover (Mission Mars)

( Object Find Robot)

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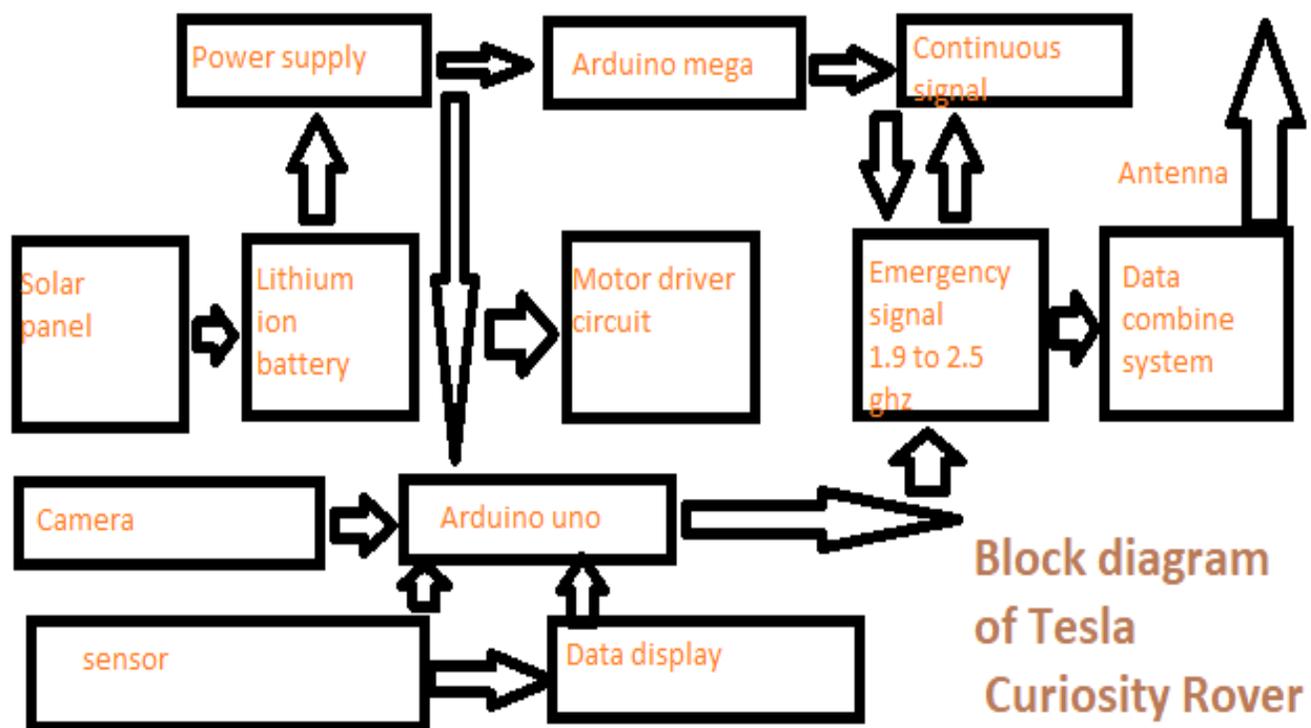
**Abstract** - We made rover which is very smart and based on radio frequency. I designed this rover 2019 to 2020 . I took one year to complete this rover. This project is based on my ideology. In this rover I have given many advanced features which make it very advanced. As- such as measuring distance detecting of gas ,testing of water , rainwater testing ,soil testing making a online video sending on earth checking and temperature check air humidity . This rover can transmit and receive high-quality radio signals. it Cost 50000 to built this rover. there are other systems in the rover that make better. This rover only able to last 500 meters. this rover can show it's demo for 55 minutes.If the Rover are designed like this in the future they will neither have a signal problem or they will be fail the somewhere.The name of this project is tesla Curiosity Rover. we can run this Rover as we wish. This Rover can connect online to laptop system for Android system. The name of this mission is Mission Mars.

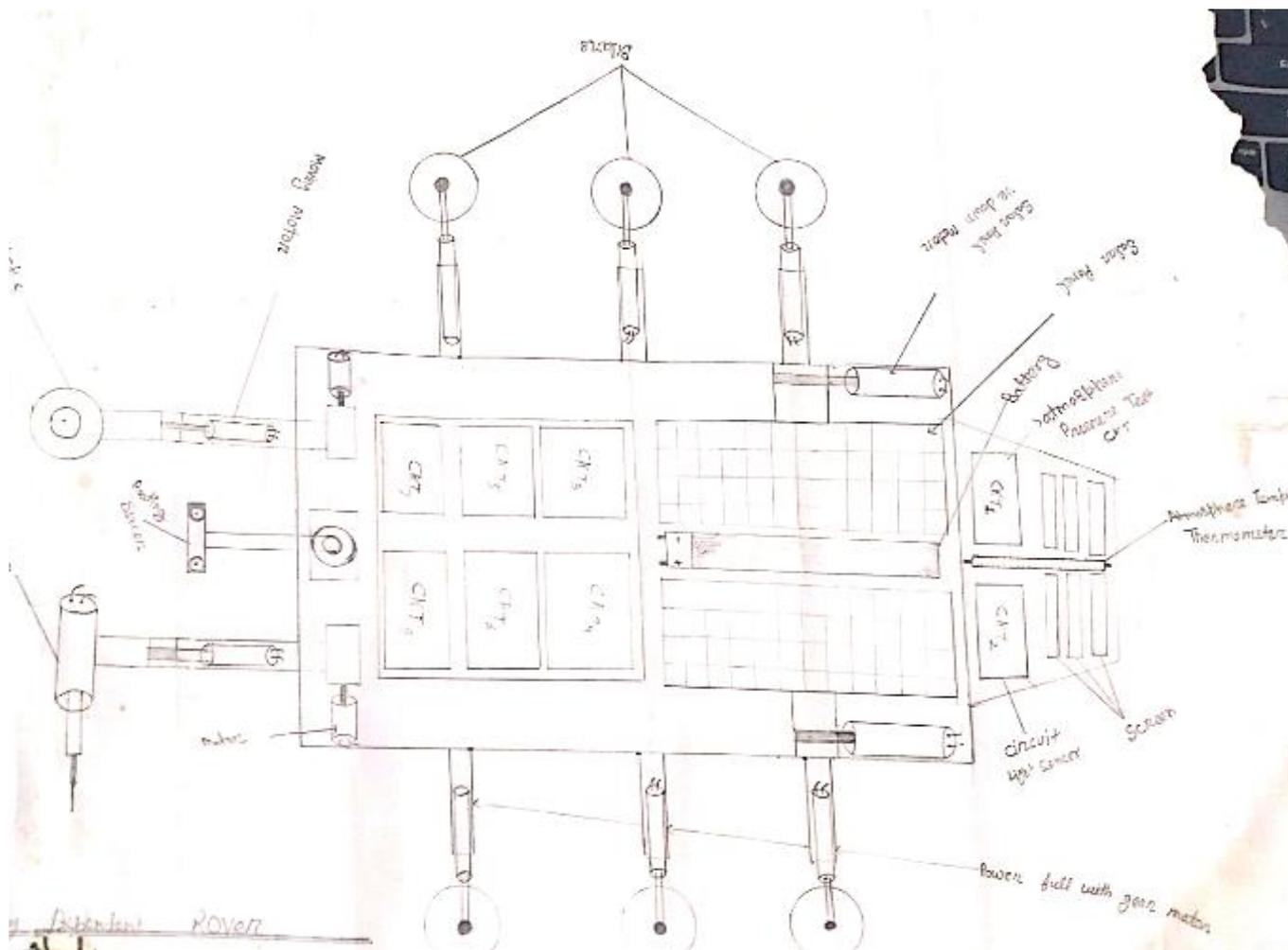
- **Introduction**

I have seen that many program are launched by the space agency and many of of them fail. Chandrayaan 2 was launched in the year 2020 in which the mission failed due to signal failover due to which crores of Rupees of the country where waste. In 2002 the US space agency NASA send a mission to Mars. which had a Rover curiosity , which was to investigate Mars, the mission could not last long after landing because the wheels of Rover were stuck in soil , so it was unable to get out , due to which the loss of million dollars to NASA. Looking at these reasons designed a rover which was equipped with all these shortcomings , in whose design I Gave all the advanced features that could save the mission from failure.I have arranged Strong signal in this rover in which I have used radio signal whose frequency is from 15 to 19 MHz. which keeps the Rover in continuous contact. In this I have second emergency signal which can be connected after **continuous signal** is broken if contact with Rover is lost then was can use emergency signal which is rang 1.9 to 2.5 GHz.I have arranged Strong signal in this rover in which I have used radio signal whose frequency is from 15 to 19 MHz. which keeps the Rover in continuous contact. In this I have second emergency signal which can be connected after **continuous signal** is broken if contact with Rover is lost then was can use **emergency signal** which is rang 1.9 to 2.5 GHz. Rover has another advance feature which is very useful for rover , I have installed Jug system in it if my rover gets stuck in the soil , then we can take out the rover by downing the jug. These Jug have advanced powerful motor are capable of lifting the load of the entire Rover. The rover made by us is a type of robot that receive our commands and acts accordingly , every one minute it send the calculate data directly to the Earth , from which we read and receive data with online video by connecting the robot online. we can see it's every activity and online images.

## • PROJECR PLANNING

I had planned this project between 2018 and 2019. I designed it in the year 2019 many difficulties were faced in making this design but after full three month I completed its design. Completely in the year 2020 , I started working on this project the parts work design structure of this rover was very difficult. I learned carpentry , welding and painting from college. In this Rover , I used programming C , after a time of One Year I completely completed this project in the year 2020.



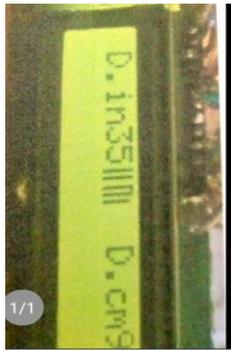


**Structure diagram of Tesla Curiosity Rover**

### 3. Project work

I used plywood to prepare the base of the Rover , in which I used a high power gear motor and also arranged the motor for the turn left and right , then Mounted all the parts on the surface then soldering iron all connection mode according to the programming. Most of the time it took me to Mount the sensor to determine the position and direction of the camera , I tested it by mounting the personal at several place then finally set the camera on the corner of the rover , after that I installed the jug system finally then I installed drill system , water testing system and soil testing system , arranged the distance measuring device in such as way that it can measure the distance of all four dimantion. I set up two type of antenna out of which one is set parabolic antenna and I arranged it in such a way that it can detect the direction of the incoming signal , i set the Solar Panel which can charge the battery during daytime set and the data display in such a way that the camera can rotated 180 degree and read the data.

## Hardware ( parts of Rover)



**Camera    Data display    Distance measur.    solar panel**



**Water testing    Drill system    Soil testing    Jug system**



**Parabolic antenna    Wheel    Temperature sensor    Gas sensor**



## Tesla Curiosity Rover

- **Working of rover parts**

- **Camera-** wireless camera is kind of device. which can shoot heigh quality video by rotating .it is for four dimensions and transmitted the collected data on earth.
- **Data display-** In case of loss of data communication. we can rotate the camera to read the printed data on the the data display. we can be used this system in case of emergency.
- **Distance measurement system-** Distance measurement system are rotate in all four dimension measures. Distance can measure high heels and deep valleys. How deep a valley is and how high a hill is or can also study.
- **Solar panel system-** The solar system helps keep the rover computer system on during the night by charging . its daughters charg during the days and work to power it during .
- **Water testing system-** Water testing system , when water is find somewhere, it check the water by downing its system. whether the water is portable or not what are the short coming in the water like. we can make it drinkable by removeing these data , these deta to directly send on earth by rover.
- **Drill system-** Drill system tests the type of soil by drilling there, it also studies the difference between the upper surface and the lower surface of the soil, which enzymes are found in the soil in its lower surface it can be detected by drilling there.
- **Soil testing system-** Soil testing system can test the soil and how much moisture is in it which fertilizers comes where there it is possible to graw crops, it checks all these data, and calculate its data.
- **Parabolic antenna-** parabolic antenna can transmitted high power signal. what the data calculate by the rover are directly transmitted to earth , the rover receivs transmitted command and do the work according to receive commaond.
- **Temperature sensor-** The temperature sensor measures tha change in temperature and calculate that data for how high or low temperature each.

- **Gas sensor-** Gas sensor measurement of different type of gass. which gas is in the atmosphere , in what quality is available carbon dioxide and oxygen , which is more important for human life , so it does their measurement or completes well.
- **Position sensor-** Position sensor detects the position of the hills and the position of the object at which angle it is at that time.
- **Software arduino ide-**

I have used Embedded C in making Tesla curiosity Rover. Aarduino supportes Embedded C. So in this I have used arduino IDE. The full form of IDE (integrated development environment). Me in doing complete programming of rover takes time one month.

- **History of my project -**

The rover made by me can give a new look to space science, I have given all the advanced features in this rover which should be in the rover. My rover was successfully published in 5 news papers. And it will also be successfully published on two TV news channels. Many books were published by my college for the successful publication of my rover. And I was congratulated on Instagram by SpaceX Agency. The SpaceX agency is an agency of Elon Musk in the future. Who works on the space program. My love for space science is very much. That's why I do my research in space science and read articles during space science.

- **Conclusion-**

The rover made by me has the ability to work for a long time. Today man uses many means to go from earth to space. Man wishes to live on another planet in space. Before that, we should have complete information about that planet. To get this information, we send many missions to other planets today. Like Mission Moon Mission Mangal etc. Mars is the best planet for human life where human life can be settled. Its information is received by the Grover who was landed there. NASA sent many missions to Mars, but the biggest success came to NASA in 2002 when they landed the first mission Curiosity rover. The rover made by me is safe and suitable. Which we can easily land on any plate, and get complete information there for a long time. The rover designed by me is capable of working for a long time. Like the Curiosity rover, it will not get stuck in any grater there. And like chandrayaan-2 mission, there is no problem of signal breakdown in this. I have done the design very meticulously. So that crores of millions of rupees of the country are not wasted, and we can be successful in our purpose, we can also settle life on other planet. Craters and rocks can be examined during this rover. According to the data received by this rover, we can know which items will be needed on Mars. So that we can live easily and what things will have to be taken there so that we can create a good environment there, from living to eating, we can also develop technology in our coming time. ommand system makes my rover better We can control the rover by command. And can work according to command. We write as much as we command in the rover. It works the same way. It is based on very advanced technology. And you can use it like a robot, in the coming time it will be very useful to establish human settlement on other planets. We can easily get information about other planets by staying on our own planet with the help of this rover.

## • Reference-

1. Tesla Curiosity Rover is a rover based on very advanced technology. In which all those instruments and systems are present. Through which it can study the entire planet Mars or Moon. This mission is similar to the rover present in Mission Mars, launched by NASA in 2002. The rover made by me is similar in design to the Curiosity rover. The design of Tesla Curiosity Rover is like Curiosity Rover but it has many advanced features which make it more advanced.

2. It has an advanced jug system and advanced power backup system installed so that it can last for a long time on a single charge. I got a lot of help from Google in making this project. I learned the electronic hardware structure of the rover from google, and I bought all its parts online. It was forbidden to go out during the time of lockdown, so I bought all its parts online, faced many difficulties during the corona period but I made this rover with very advanced technology.

## • Result-

The Tesla Curiosity rover made by me is capable of working even in temperatures of  $-85^{\circ}\text{C}$  to  $60^{\circ}\text{C}$ . The data sent by this to the earth has an accuracy of up to 99.9 percent. The Tesla Curiosity rover is capable of maintaining 24-hour online connectivity. The online connectivity of the rover does not depend on the weather, whatever the weather, it performs its full function with the online connectivity. Transmitter is capable of receiving data continuously, transmitter can receive data every one minute. Due to the large distance of Mars and Moon, there are many problems in transmission of data. It may take several minutes for the data signal to travel between them. I have tried to reduce the time of data transmission. So that we can receive the data quickly from the transmitter.

