THE ROUGH TERRAIN VEHICLE

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Abstract - *The discovery of minerals is very important during freight to transport the driving of armed vehicles to enemy territory. Rocker bogie is essential for conducting scientific in-purpose research that is divided into several meters to tens of kilometers. These armored vehicles or large military tanks are used to follow the method of a hand-operated engine to avoid damage / disruption of the military tank and the active protection of the security personnel. . A four-wheeled rover capable of traversing a difficult terrain uses a high-speed travel suspension system. The basic feature of the rocker bogie design is its simplicity of train, which is made using only two motors of transmission. Both vehicles are located inside the body where thermal flexibility is kept to a minimum, increasing reliability and efficiency. In addition the passenger funds used by the mines planted during the war can be identified and disrupted by replacing a weak mining mine, which can save the lives of citizens to avoid human delays. A series of cross-country trials of agriculture, sidewalks, inclination, stairs, and high barriers concluded that a rocker bulie could reach a certain distance to the stadium. This project work proposes to develop a prototype model for a robot-derived robot (LDR), which can be used remotely using RF technology. Human safety was downplayed and organized by robots with special sensors for the range used to LEARN MONEY MONEY. The design of this project building is made of steel. The robots system is plugged into a ground detector that detects ground noise and a buzzer from generating a warning alarm for nearby workers in the area. Robot capture is done by a DC motor. The robot can pinpoint the position of the terrain designed using the Proteus 8 TM software and the embedded system using Arduino software.*

Key Words**: Rocker bogie; Wheelchair mobile robot, arduino board, landmine etc.**

1. INTRODUCTION

Natural environments are weapons or explosives buried under soil that are under pressure, and can kill or cause damage when cut over, and cause long-term effects on the body. Natural areas pose a serious threat to soldiers and civilians around the world and pose significant challenges to agriculture, infrastructure and road development in postwar areas. Land mines are usually buried less than 10mm to 40mm below ground and require a minimum pressure of 9Kg to upgrade them. The diameter of these AP mines ranges from 5.6 to 13.3cm.

Land mines are broadly divided into two types of landmines Anti-personnel and Anti-Tank landmines. The civilian masses used to inflict casualties on the fact that they contain a small number of explosives are opened to pressure while the Anti-Tank landmines contain a large number of explosives and can kill large tanks. In order to break down the affected areas, several techniques have been used to detect these threats. As electromagnetic induction (EMI) sensors can detect metal mines at a low cost, this method has been studied, and uses electromagnetic features of a mine or mine casing. Several techniques such as GPR, infrared imaging, acoustic methods, etc. They have already checked that they are ineffective and expensive.

Current systems use Wireless controlled robots that operate with the help of RF technology,. The project aims to design a world-class robot that uses RF technology and is controlled by an Arduino microcontroller. With the help of a remote control, we can move the robot to the desired location as needed.

Over the past decade, the construction of a rocker-bogie suspension has become a proven travel tool known for its vehicle stability and elegance. After using a lot of technology and implementation of rover research, a plan was needed When the Mars Exploration Rover (MER) Project was first proposed, the use of a rocker-bogie suspension was the obvious choice due to its extensive heritage. The challenge posed by MER was to design a lightweight rocker-bogie suspension that would permit the mobility to stow within the limited space available and deploy into a configuration that the rover could then safely use to egress from the lander and explore the Martian surface.

In most cases you will never need a suspension system, but there are several times when the suspension system can be blocked. The word "bogie" refers to the connectors on the drive wheels at each end. Loggers were used as luggage wheels in the tank of army tanks as traders spread the load over the area. Logies were widely used in semi-trailer truck trailers. Both programs now favor suspension tracking. The rocker-bogie design has no springs or axes for each wheel, allowing the rover to climb over obstacles, such as rocks, that reach twice the wheel diameter while keeping all six wheels on the ground. As with any suspension system, toll rigidity is limited by the height of the power draw center.

2.0 METHODOLOGY

According to the study, the spinning car reduces travel by half compared to other suspension systems because each of the four wheels (six wheels) has an independent steering wheel. Analyzes were performed on the task of making the rocker bogie mechanism up the stairs.

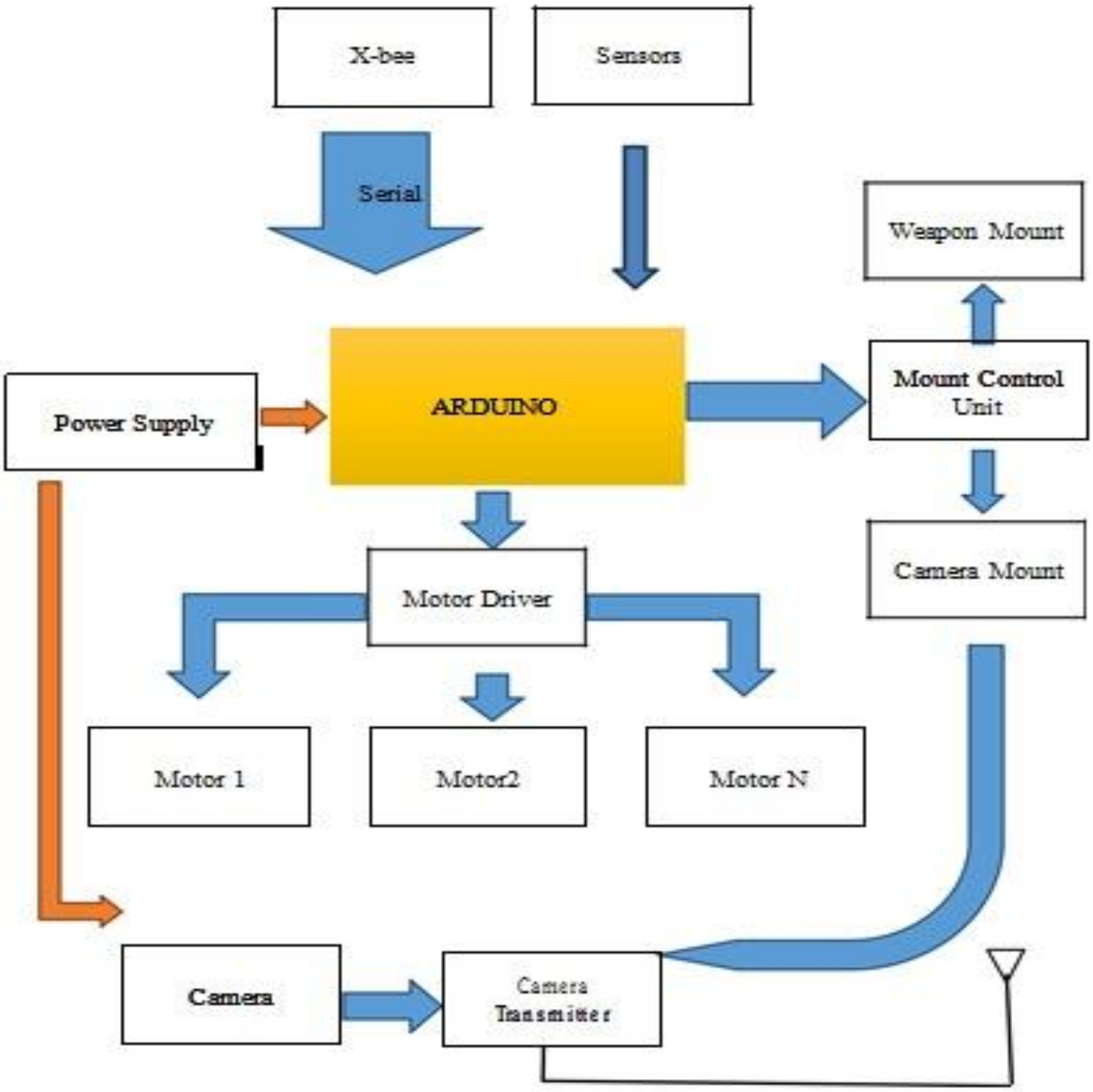


Figure 1- Block Diagram of Ground Vehicle

To overcome the vertical barriers, the front wheels are compressed when making this seat by the center and the rear wheels produce the required maximum torque. Rotating the front wheel and lifting the front of the car upward despite the obstacle and obstacle we have encountered. The wheels stay in the center, and then pressed against the back wheel and pulled against that barrier in front until the time they lift and pass. Finally, the rear wheel is pulled over the obstacle by two front wheels due to the use of gravity. While each wheel turns an obstacle, the car's progress is slowed down or stopped altogether, which keeps the center of gravity moving.

3. DESIGN CALCULATION

The purpose of the research work is to climb the stairs. To reach the right stairs to increase the size of the connection should be a must. Take the ladder height and 150 mm height and 370 mm respectively. In order to climb the stairs with high durability, it is required that only one wheel drive should be mounted at a time. Therefore to obtain the size of the bogie connector, the original wheels of the wheels must be positioned in a horizontal direction for the end of the display as shown in Fig.2. And a second one should be set just before the start of the hike. There was some distance between the straight edge of the ladder and the second of the steering wheel.

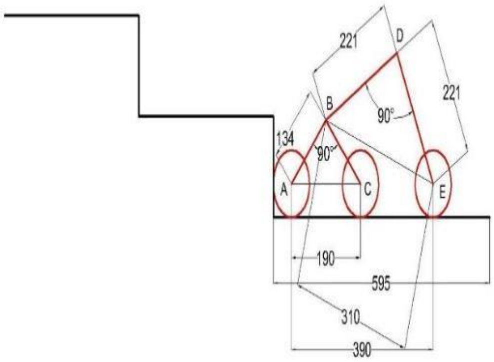


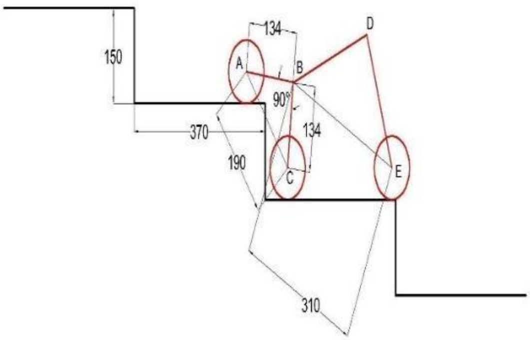
Fig 2.0 Cad is a drawing of the first triangle

Now, you need to find the distance between the first and second wheels using CAD software (190 mm). If you think the left triangle is ABC,

Using Pythagoras in ΔABC (Fig. 1.) assume the length of AB and BC is x. $AC^2 = AB^2 + BC^2$

$190^2 = x^2 + x^2$ $190^2 = 2x^2$ $x = 134$ mm

Therefore, AB = BC = 134 mm (Figure 3)



Cad Figure 3

Similarly, to determine the size of rocker connections first the two wheels must be positioned horizontally. The wheels of the third wheel should almost complete their climb before the start of the first wheel. By positioning the wheel thus we obtained the size of the link BC (311mm).

Now think about ΔBDE (Figure 7),

$BE^2 = BD^2 + DE^2$ $311^2 = 2y^2$ $y = 221$ mm

Therefore, BD = DE = 221 mm (Figure 3)

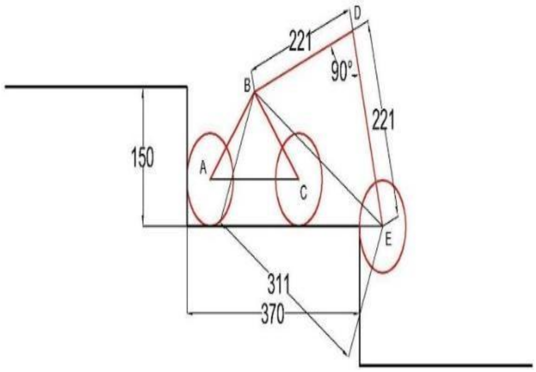


Fig 4 CAD is a diagram of both triangles

By looking at all these lengths and angles we have painted all the machines. Above Figure 4, shows all types of robot. We assume the acrylic diameter is 40 mm appropriate to dig a 15 mm diameter hole.

4.0 CONCLUSION

This work shows how the rocker bogie system works in finding his unique face. Depending on the different weight that applies to the Bachelor's Degree in the Mechanical link determines the torque applied to it. Rocker bogie system also achieved optimum At present it serves as a diagnostic aid while the surveillance camera is around 360°. agriculture, flowers and animals, and infrastructure in post-war world countries. The design used in this work is the construction of robots using RF technology controlled by the Arduino microcontroller.

The robot can travel in all four directions using remote keys and the landmine is available using a metal detector mounted on the boot. The proposed model can only locate the world's iron ore mines naturally and cannot locate non-metallic mines (plastic mines).

The proposed system does not provide additional information about the iron content of the land manager and the type of land holder acquired as the system is missing from the image printing system. In the event of a plastic detector being detected, the detector may be replaced by a ground-penetrating radar or other means of detecting it to circumvent the limits of our prototype. Other future developments in this prototype may include Shock absorbers and settings that can be mounted on wheels, so that the robot can run anywhere.

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