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Straddle Rover Ai Based Rocker Boggie Mechanism

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ABSTRACT: Navigation of the people into a tunnel may be a major problem and monitoring a species within the forest is an additionally difficult task to beat from these problem rocker-bogie mechanisms is employed. The proposed system is predicated on modern technologies like the internet of things, Rocker-bogie mechanism, and automation. The most unit of straddle Rover is Raspberry Pi. Using motor driver IC two dc motors are connected to the GPIO of Raspberry Pi. An internet server is made in Raspberry Pi using the MJPG streamer program. The web-page which features a screen for video streaming and buttons for the movement of straddle Rover and Camera. Using this rocker-bogie mechanism, the straddle rover is employed to watch species within the forest and also to navigate into the tunnel. This technique overcomes some limitations of the wireless networks in areas with such characteristics. The dedicated communication channels used for data routing from unlimited channels.

KEYWORDS: Internet of things, Raspberry Pi, Rocker-bogie mechanism.

I.INTRODUCTION

Video surveillance has played a supreme role within the research of the previous couple of decades. The appliance has a wide selection of purposes like traffic monitoring, understanding act. Different quite cameras are employed for surveillance like fixed cameras, and pan and tilt cameras. These sorts of cameras are generally used for indoor security. The indoor security system multiple cameras are mounted on the wall with different angels to trace objects. These sorts of systems need a computer or a laptop for monitoring. Nowadays, most of the system uses a mobile robot with a camera for video surveillance. The camera mounted on the straddle rover can move to different locations. These sorts of robots are more flexible than fixed cameras, it's as long as mostly used surveillance robots are wheel robot. The wheel- based robots are more suitable for a flat platform. With the event in wireless communication and the internet, the videos captured by wheel robots are often seen remotely on a computer or laptop. The above two sorts of need computers or laptop which makes the entire system bulky. within the systems uses Bluetooth module for controlling robots using phones. But the range of Bluetooth is restricted. With the event in wireless communication and the internet, security systems are rapidly improving. This paper describes a way of controlling a robot employing a Smartphone. The most unit of a robot is Raspberry Pi. Using motor driver IC two dc motors are connected to the GPIO of RaspberryPi and internet server is made in Raspberry Pi using the MJPG streamer program. An application is made for Smartphones. The appliance from Smartphones will open the web-page which features a screen for video streaming and buttons for the movement of robot and camera.

II.EXISTING SYSTEM

The existing system of rocker-bogie mechanism is suspension where wheels from all sides of the vehicle are connected with a swing arm on the rotary axle. Rocker Bogie is predicated on the remote system. The drawbacks remote-controlled rocker bogies need humans to work in the nearer range. The proposed system makes rocker-bogie advance automatic and without the assistance of a person.

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III.PROPOSED SYSTEM

The proposed system is both monitoring and control the robot. The rocker-bogie can control through buttons at the website section. The controlling of the straddle rover using the webpage makes the system efficient and reliable.we will lively monitor the video. The online page is accessible anywhere within the world. The camera module will help monitor robot and also to regulate the robot module. Here raspberry pi is employed to regulate the robot. All the info will ready to access through the internet. Total surveillance manager and security robot system is meant for monitoring the behaviors of robots, CCTV cameras, and sensors.

BLOCK DIAGRAM

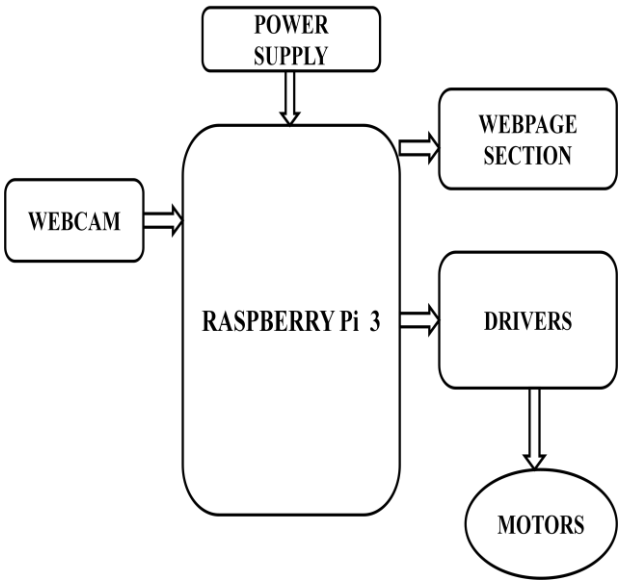

Fig 1 Section 1

The Section 1 consists of a webcam may be a video camera that feeds its live streaming in real-time to a computer or network, often via USB, Ethernet or Wi-Fi. Their hottest use is that the establishment of video links, permitting computers to act as videophones or videoconference stations. This common use as a video camera for the planet Wide Web gave the webcam its name. Other popular uses includesecurity surveillance and computer vision. Webcams are known for his or there low manufacturing cost and adaptability, making them rockbottom cost sortof videotelephony. They have also become a source of security and privacy issues, as some built-in webcams areoften remotely activated via spyware.

L293D IC generally comes as a typical 16- pin DIP(dual-in line package). This motor driver IC can simultaneously control two small motors in both forward and reverse direction with just 4 microcontroller pins. The DC motor in which its rotation is controlled with a L293D motor driver IC. In the raspberry Pi GPI pins is used an we make use of a keyboard to enter the commands for varying the actions.L293D is a 16 pin IC, with 8 pins, on each side, dedicated to the controlling of a motor. There are 2 input pins, 2 output pins and 1 enable pin for each motor.

DC motors which converts electrical signal into mechanical signal. The DC motor consists of some internal mechanism, it could be electromechanical or electronic. This determines the direction of current flow in the motor. we are using 6 DC motors for the straddle rover that control the movement of the wheel. The DC motors has two terminals that is terminal 1 and terminal 2. DC motors work on 12V. A DC motors can be controlled over a wide range, using either a variable supply voltage or by changing the strength of current in its field windings.

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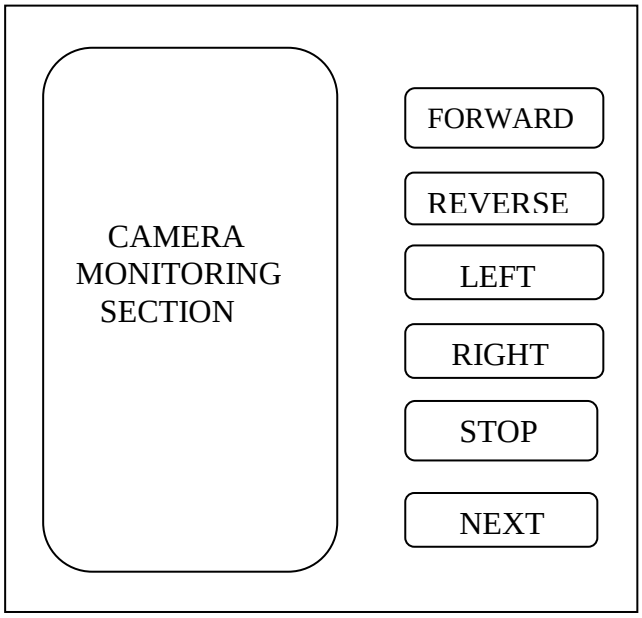

Fig 2 Section 2

In the Section 2 a web page is designed to control the straddle rover and the program is coded in Hyper Text Markup Language(html). Personal home page is created for security purpose. Here we are controlling the forward, reverse, left, right, next, and stop actions. This page can be access at anywhere and it is user friendly to the environment.

IV.METHODOLOGY

This chart explains about the working of camera module. When we will connect the straddle rover to the system we can monitor the live video through the system. When the camera is on, it will staart searching if any object is detected then it make transmit the video and display via system. We can control the straddle rover based on the video. If there is no object is found it will restart to search the objects.

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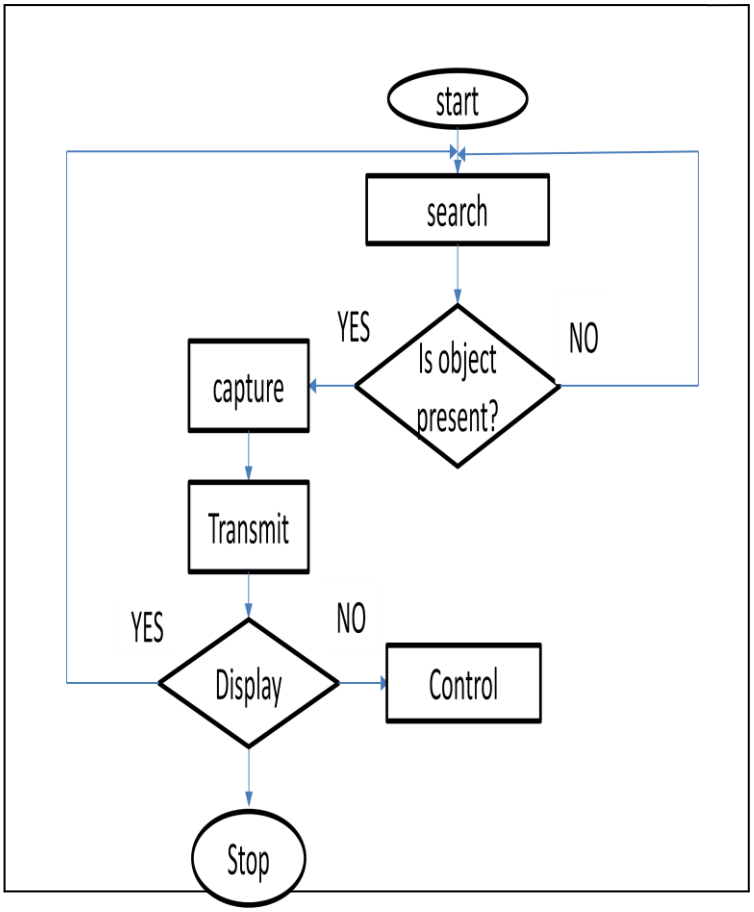

Fig 3 Flow Chart

V. OUTPUT IMAGES

Fig 4 is the output of the camera module. It can be coded using python language. In this output the camera is on so the output is shown true.

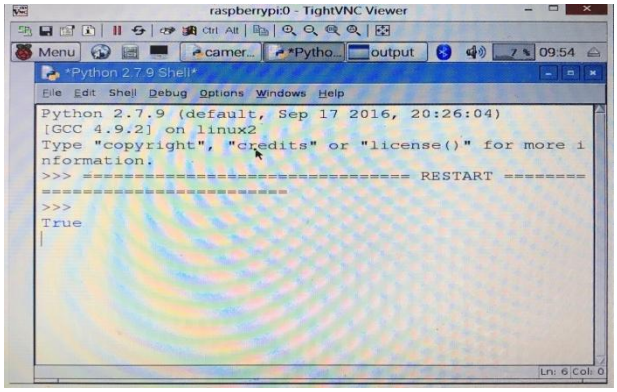

Fig 4 Output of camera module

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Fig 5 is the output of survey robot. It can also be coded using python language. In this output we could not on the L293D drivers so it will show that all the statement is off.

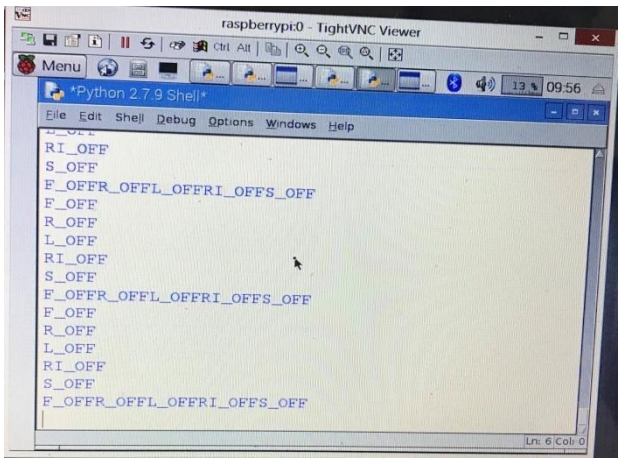

Fig 5 Output of Survey Robot.

Fig 6 is the output of the straddle rover. This image is the both monitoring and controlling section of the straddle rover. The left side of the image is the controlling the straddle rover using six button and the right side of the image is monitoring the straddle rover.

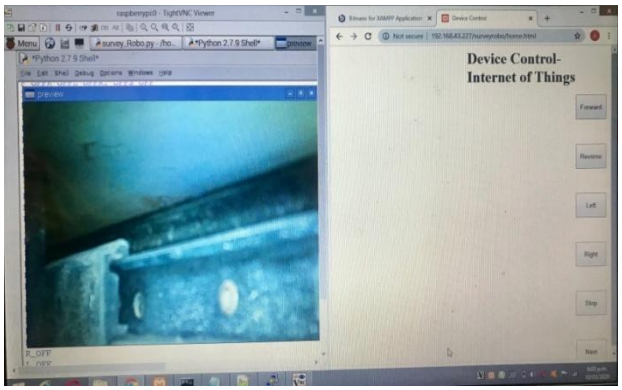

Fig 6 Both Monitoring and Controlling screen

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PROTOTYPE OF STRADDLE ROVER

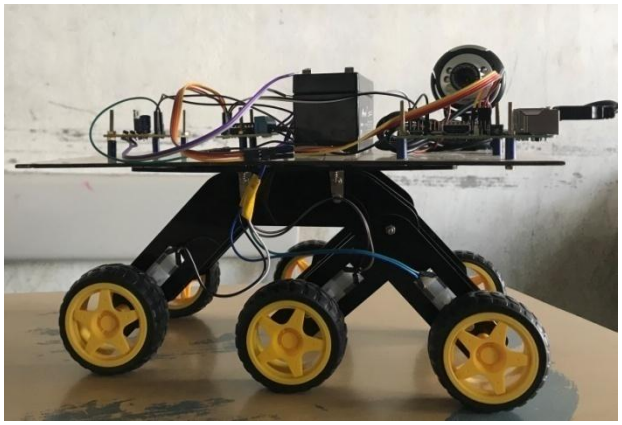

Fig 7 Image of Straddle Rover.

VI. CONCLUSION

Thus the straddle rover overcomes major issue in tunnel. Human movement into the tunnel is a difficult task and manual operation is needed at a nearer range to operate the robot and it perform control operation only. This paper present a solution to both monitor and survey into the tunnel. The straddle rover is both monitor and controlling through webpage.

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