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IoT based Wireless cARdrONE Surveillance Robot

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Abstract: ***A robot has been created which can be utilized for multipurpose applications identified with observation with a remote intention. It is essentially carried out for observing different conditions in the general climate. We propose a financially savvy four wheels reconnaissance robot utilizing Arduino microcontroller which utilize servomotor including DC Motor, RC beneficiary and transmitter, different sorts of various sensors and so on. A high goal camcorder is appended with the robot for securing of pictures and video from the encompassing. By watching the situational pictures and recordings, the client can find out about climate. This framework is valuable for checking in zones where there is no Internet association and furthermore the breakdown of the correspondence framework during any fiasco. Our venture "Wireless cARdrONE Surveillance Robot" portrays the degrees and strategies referenced previously.***

Keywords: Raspberry pi/Ardunio, Camera interfacing, Sensors module, face detection, server etc.

I. INTRODUCTION

These days, robots are turning into a stage to create or find a machine to facilitate crafted by human. A robot fundamentally is an astute gadget intended to help people in every important or superfluous field. The robots have no fixed shape, nor are been determined for a specific field or a specific work. They can be made or changed over into any structure contingent on the space of application. In all likelihood, robots are made with the assistance of extra advancements like robots are being worked with all association less intention like remote ones. Additionally with the assistance of reconnaissance rationale, various circumstances, areas depicting different challenges can be checked without any problem. Consequently to upgrade these highlights in a superior way, we have carried out a remote reconnaissance robot to screen ecological circumstances in an effective manner.

The robots are utilized to manage job where humans face limitations. Nonetheless, there are numerous reasons why robots are superior to people in playing out specific undertakings. Appearing to be identical, this undertaking gives a remote robot a superior reconnaissance intends to address any tough spots in the climate. Other than this, the undeniable benefit of not taking a chance with any faculty, land and air, this robot can likewise search for subtleties that are not noticeable to people. It is feasible to get distance data to explicit region by giving the high goal cameras and different sensors.

This framework incorporates a robot which works same like other conventional robots and have a ton of downsides, to such an extent that a robot works inside explicit methods for innovation, bogus dependable, and so on. The current framework is truly helpless against connect with territory confronting challenges and no satisfied system is applicable. It is additionally tedious to address the issue and resolve something similar. In our proposed piece of work, the robot satisfies the issues given previously. It is helpful for checking in territories where there is no web association and furthermore the breakdown of the correspondence framework during any calamity.

II. LITERATURE SURVEY

This paper proposes a method for controlling a wireless robot for surveillance using an application built on Android platform. The Android application will open a web-page which has video screen for surveillance and buttons to control robot and camera. Android Smartphone and Raspberry pi board is connected to Wi-Fi. An Android Smartphone sends a wireless command which is received by Raspberry pi board and accordingly robot moves. The Video Streaming is done using MJPG streamer program that gets mjpeg data and sends it through a HTTP session. The Raspberry pi programming is done in python language. The experimental result shows that the video streamed up to 15 frames per second. [1]

This paper presents us a modern approach for surveillance of outdoor security. This robot has the ability to detect a human whether he/she is authorized or not using RFID tag and also detects metal bombs using metal detector sensor. Wireless camera mounted on the robot provides us continuous streaming of the defined outdoor area and a stepper motor is used for the rotation of the wireless camera in 360-degree direction. Surveillance is done even in complete darkness by using Infrared lighting. The heart of our paper is

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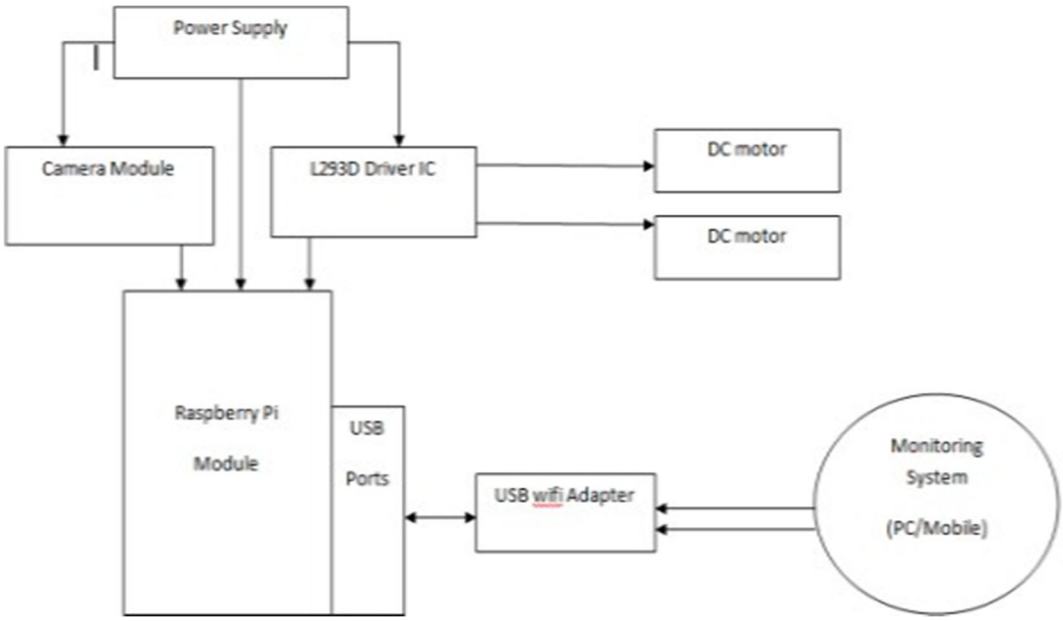
Arduino Uno microcontroller, used to control the entire functioning of the robot. It analysis the signal from the RF receiver and displays the corresponding message. IR detector is used for the obstacle detection. Two DC motors are interfaced at the receiving end of the microcontroller, which controls the movement of the robotic vehicle. GSM module is used to get the message about the human and metal detection. This robot replaces human being for security purpose. [2]

A robot has been developed which can be used for multipurpose application related to surveillance and security systems. From ground testing of this robot it has been found that it can be controlled from unlimited distance as the system is based on World Wide Web (www). This robot also has a teleportation system based on radio frequency (RF) for signal processing. It has been found that this robot shows about 78% efficiency when a constant 512 kbps Wi-Fi internet connection is applied. Visual Basic software has been used to operate the robot. Four cameras are attached with the robot for acquisition of images from the surroundings. Vmcap software is used to show all these camera images at a time. The images from the four cameras and the control panel will be transmitted and displayed in the user's monitor. Virtual network computing (VNC) software has been employed for the purpose. By watching the situational images sent by the remote robot it is the user who can control the motion as well as can get the idea of the environment. A GPS (Global Positioning system) device is mounted over the robot to get the satellite image of the mobile robot trajectory of motion and a total track map. This paper describes the methods and scopes of the above- mentioned robot. [3]

III. PROBLEM STATEMENT

In past projects, it is seen that occasionally checking is accomplished by conveying near delicate spaces of staff to continually screen the changes. Yet people have constraints in places that are not generally conceivable. There are moreover extra dangers losing the staff if there should be an occurrence of being gotten by the adversary. Accordingly to address these issues, proposed a robot with trend setting innovations. It is feasible to screen far off spaces of significance by utilizing robots rather than people with the assistance of extra highlights.

IV. SYSTEM ARCHITECTURE

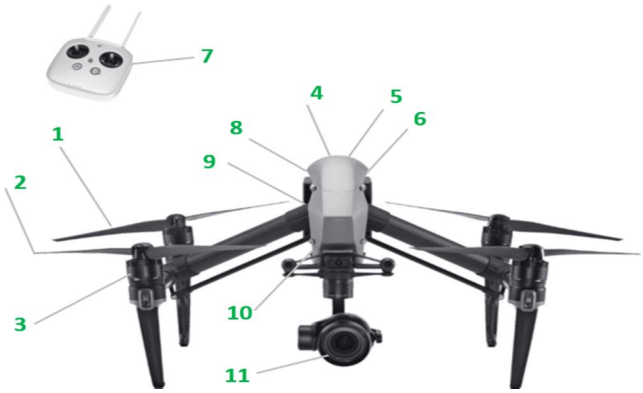


It comprise of the fundamental model of the framework associations and the between conditions of each square on one another. Force supply is given to IC driver L293D and this stock is additionally given to two dc engines. Camera module and Raspberry Pi is mounted on mechanical vehicle for reconnaissance. The collected model of the automated vehicle associated with camera, battery, engine driver L2938N, Power supply and any remaining parts. This vehicle is constrained by the orders given over distant/telephone/work area and the camera. It shows live video caught by the development of automated vehicle which is controlled through telephone/Desktop/far off. The automated vehicle has given the controls on the telephone/work area/far off the order, for example, forward, in reverse, right, left, fly, and so forth for the movement of vehicle separately.

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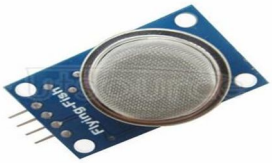
V. SYSTEM REQUIREMENTS



1) Standard Propellers
2) Push Propellers
3) Brushless Motors
4) Landing Car
5) Electronic Speed Controlle
6) Flight Controlle
7) The Receiver
8) The Transmitter
9) GPS Module
10) Battery
11) Camera
12) Sensors

A. Smoke Sensor

A smoke sensor is a gadget that detects smoke, commonly as a pointer of fire. Business and private security gadgets issue a sign to an alarm control board as a feature of an alarm framework, smoke cautions, for the most part issue a nearby discernible or visual alert from actual indicator.



B. IR Sensor (Motion Sensor)

The 5 VDC supply input is given to the VCC pin and the stock negative is associated with the GND terminal of the module. At the point when no item is identified inside the scope of the IR recipient, yield LED stays off.



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C. Temperature Sensor

A temperature sensor is an electronic gadget that actions the temperature of its current circumstance and converts the info information into electronic information to record, screen, or sign temperature changes. There are a wide range of kinds of temperature sensor.



VI. EXPECTED RESULT

The main objective of the proposed work here is to make a robot where it will be easy to monitor areas where there are least odds of people to address various circumstances occurring also surveillance over the places in a wireless way which is important to due to some security reasons for humans. Here our robot is comprised with different kinds of sensors, such as, smoke sensor, IR sensor i.e. motion sensor, temperature sensor and so on with which it will be easy for the robot to analyze the situation and give fundamental information in a solid manner. Additionally a high resolution camera is provided to track digitally. Let's take an example in such a way like suppose in a specific area, fire like disaster happens; so here humans can handle the present situation at a particular extent and henceforth to deal with a similar all the more deftly, the proposed robot is a superior solution. This robot claims to pass by the two different ways, by road ways and via aviation routes as well. So here robot will initially attempt to pass by road ways which will be observed by the user with the assistance of an external gadget. If it seems like robot cannot bare the warmth much by the given sensors, the propellers of the robot will start automatically and hereafter it will pass via aviation routes and provide the live streaming about the situation to the user. With the help of this, we are easily able to adapt the condition and manage the solutions in a reliable manner. Therefore we can say that in spite of the fact that for some circumstances humans have a few restrictions however atmost extent this robot comes as a complete solution to address the situation in a superior way.

VII. ACTUAL RESULT

The proposed framework culminates with a better clarification by addressing various circumstances, regions depicting various complications where humans can't reach within time to solve the problem.

A. Drone Output



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B. Smoke Sensor Output



Fig. Working Smoke Sensor

C. IR Sensor Output



Fig. Working IR Sensor

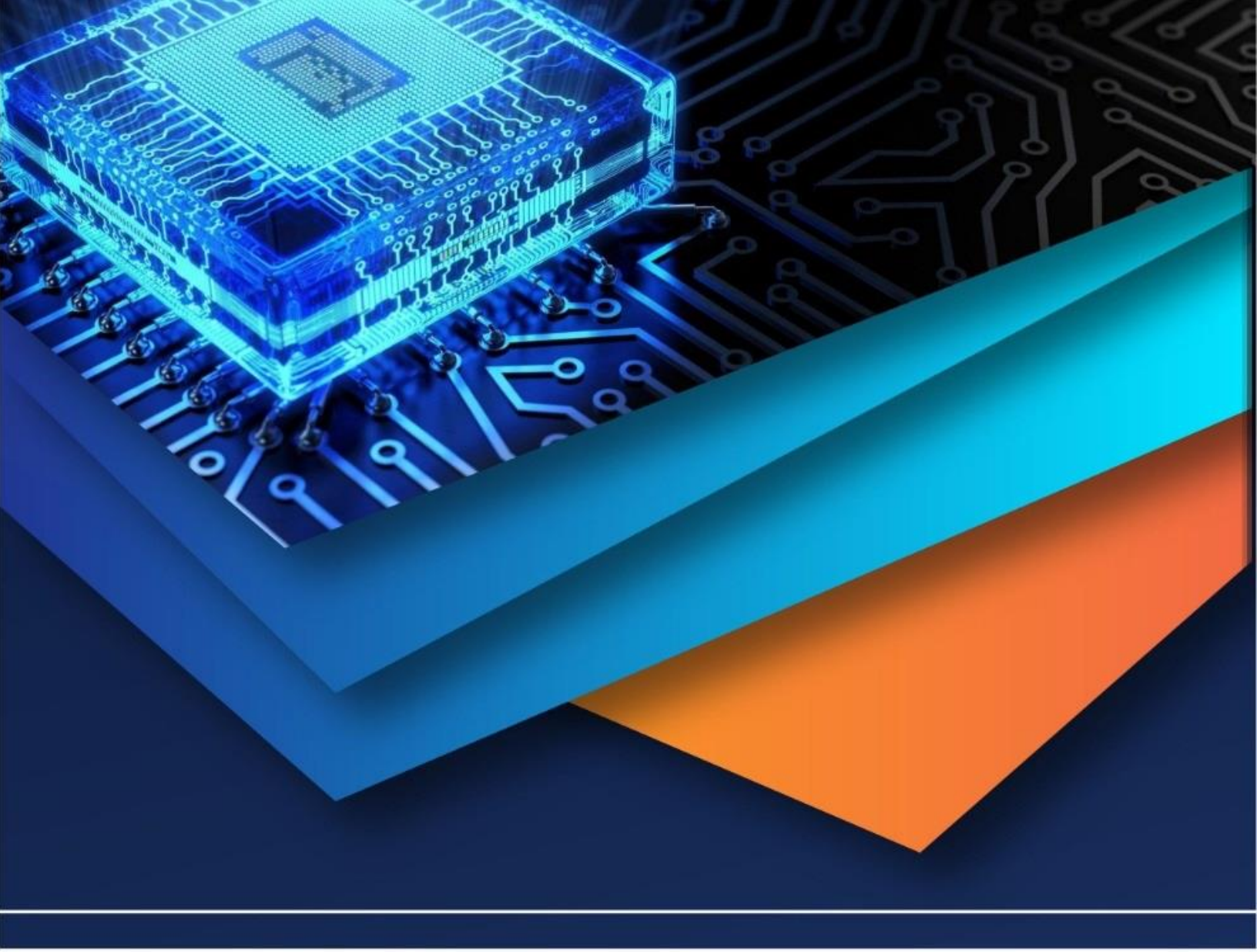
VIII. CONCLUSIONS

The implementation of this work concludes that major environmental catastrophes can be analysed and solved in every relevant or irrelevant field. With the additional features and technologies, this robot can be said as a reliable piece of work in every means of technology.

REFERENCES

[1] AtulSutar,ShashiGhanekar,SharwariShinde,PrajaktaShinde "Wireless Surveillance ARONE Robot", 2020.
[2] ChinmayKulkarni,SuhasGrama,PramodGubbiSuresh.,"Surv eillance Robot Using Arduino Microcontroller, Android APIs and the Internet", IEEE First International Conference on Systems Informatics, 2014.
[3] Kyunghoon Kim, "Intelligent surveillance and security robot systems", in IEEE Workshop on Advanced Robotics and its Social Impacts (ARSO), 2010, p. 70-73.
[4] Pavan.C, Dr. B. Sivakumar "Wi-Fi Robot for video Monitoring & Surveillance System" International Journal of Scientific & Engineering Research Volume 3, Issue 8, August2012.
[5] BihLii Chua and Kenneth Tze Kin Teo "Development of a Wireless Device Control Based Mobilr Robot Navigation System" 2012 IEEE Global High Tech Congress on Electronics.

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