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Wireless Bomb Disposal Robot and Live Streaming using Arduino

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Abstract: ***When the first started working on this project, had no expertise of doing a AI project. we tend to had done variety of little comes of programming, databases, graphics etc. and had taken a course on AI, however we tend to had no sensible expertise of any kind. an impression signal is generated for beginning or ending the video transmission and conjointly the golem is provided with a light source, that is employed for night mode or wherever visibility is low. an impression signal is generated by the appliance, that is distributed to the microcontroller to modify the sunshine on and off. The golem that we've got designed is radio-controlled by controls that take input from a personality's and perform bound actions supported these inputs. The golem that we've got created may be a command and management golem. This golem takes commands from the user within the sort of management signals and performs the desired action. The central plan behind this golem is to supply a line of defence to a bomb disposal squad against the life threatening risk, sweet-faced by them within the event of AN explosion. It provides the squad a secure distance to dispose off a bomb, that he usually must do along with his bear hands.***

Keywords: Motor Driver IC(ULN2003,L293D), Arduino Wi-Fi Transceiver, Controller Unit (Arduino)

I. INTRODUCTION

The word automaton was derived from Czech word robota which suggests “a forced laborer” then later a renowned Russian phantasy author writer coined the word AI. From there on numerous totally different developments area unit being with success done until date within the field of AI within the sort of manipulators, humanoids ,micro robots etc. because the trend of the trade is moving from this state of automation to robotization . so the automaton technology is advancing chop-chop. The automaton that we tend to area unit getting to created could be a command and management automaton. This automaton takes commands from the user within the sort of management signal sand performs the specified action. The central plan behind this automaton is to produce a line of defense to a bomb disposal squad against the life threatening risk, round-faced by them within the event of AN explosion. It provides the squad a secure distance to dispose off a bomb, that he unremarkably must do along with his clean hands.

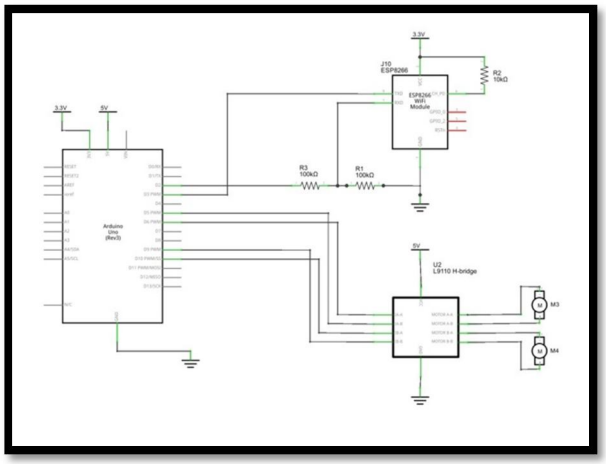


Fig. 1: Circuit Diagram of Wirless Bomb Disposal Robot and Live Streaming

II. LITERATURE SURVEY

Mr. Ranjeet P. Rajmane and Miss. Yogita Y. Pati [1] in this paper described the control of a robot using an Android mobile. We use Bluetooth as the wireless interface between the mobile and the robot. An android application serves as the graphical user interface for the application. The main idea of this robot is to provide safety and handling hazardous material like bomb. This Wireless Robot uses a control application at the user end to control the robot remotely using Android technologies.

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Dhanasekar and P.Sengottuvel [2] presented a paper in which a robotic arm was developed using a 89c51microcontroller, programmed with Keil software with the use of a monitoring camera controlled by a remote controller. This robot having the pick and place arm for pick explode things. In the proposed system, interfacing the pick and place robot with 89c51 microcontroller through the driver circuit. The robot navigation and operations should be controlled by Zigbee technology.

III. SYSTEM MODELING

One of the best threats for each police and military forces to handle is explosive devices. Even once a tool is found, disarming it's doubtless dangerous and unpredictable. Robots ar employed in several cases to help bomb squads, however they need several limitations. Current bomb disposal golems have grippers which permit the robot to open doors and access the explosive device; but, in most cases somebody's should place themselves at risk by disarming the device manually. To more cut back the risks related to bomb disposal, robots should be developed which will truly disarm explosive devices. the most plan of this golem is to produce the bomb disposal squad with safety and security from the risks that they face a day.

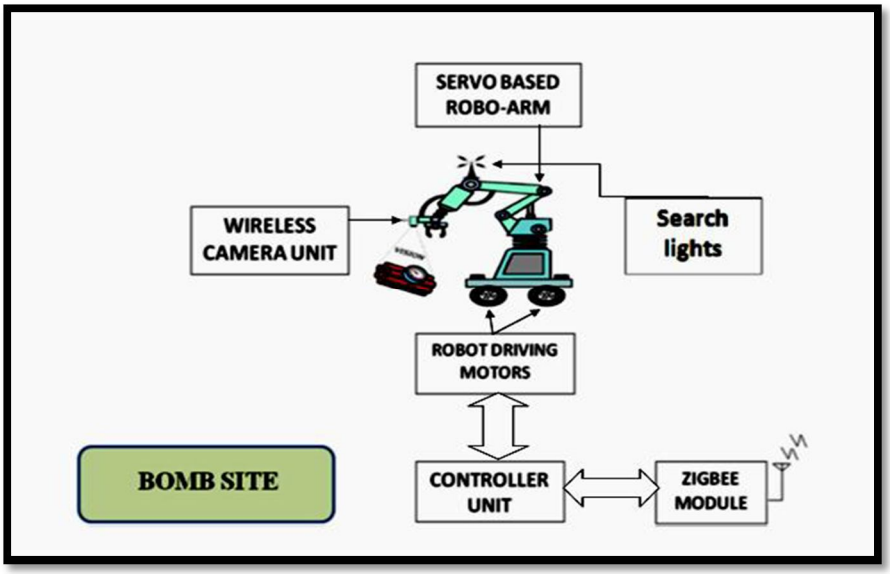


Fig. 2: Block Diagram of Wirless Bomb Disposal Robot and Live Streaming

The bomb disposal squad of Karachi has metal detectors and different instrumentation for bomb detection and disposal, however they need to risk their lives by approaching the bomb or the suspicious packet with none safety and precautions. Our automaton provides an additional layer of protection to the bomb disposal squad by permitting them to examine and analyse a suspicious packet before truly approaching it for disposal. Mobile robots scale back or eliminate a bomb technician's time-on-target. A automaton takes risk out off probably deadly situations Associate in Nursingd lets the bomb technician specialise in what to try and do to an device instead of on the immediate danger to life and limb. Though a automaton cannot reach Associate in Nursing item for disruption, it will still be wont to relay data to help in tool and procedure choice to moving downrange. Additionally, events recorded by a robots camera will offer proof for more analysis.

A. Arduino Uno: Arduino Uno is a microcontroller board based on the ATmega328P (datasheet). It has 14 digital input/output pins (of which 6 can be used as PWM outputs), 6 analog inputs, a 16 MHz quartz crystal, a USB connection, a power jack, an ICSP header and a reset button. It contains everything needed to support the microcontroller; simply connect it to a computer with a USB cable or power it with a AC-to-DC adapter or battery to get started.. You can tinker with your UNO without worring too much about doing something wrong, worst case scenario you can replace the chip for a few dollars and start over again.

B.Motor Driver IC(ULN2003)

The ULN2003 is a monolithic high voltage and High Current Darlington transistor array The ULN2003 is 16 pin motor driver IC It has 7 input and 7 output pins 1 COM and 1is 5 volt TTL, CMOS These devices are capable of driving a wide range Of loads including solenoids, relay DC Motors

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C. Arduino Wi-Fi Trancreciver

802.11b or g or n protocol wi-fi 2.4Ghz, support WPA or WPA2 Deep sleep power<10Ua Power down leakage current<5Ua Integrated low power 32-bit MCU Wake up and transmit packets in<2ms Standby power consumption of <1.0Mw(DTIM3).

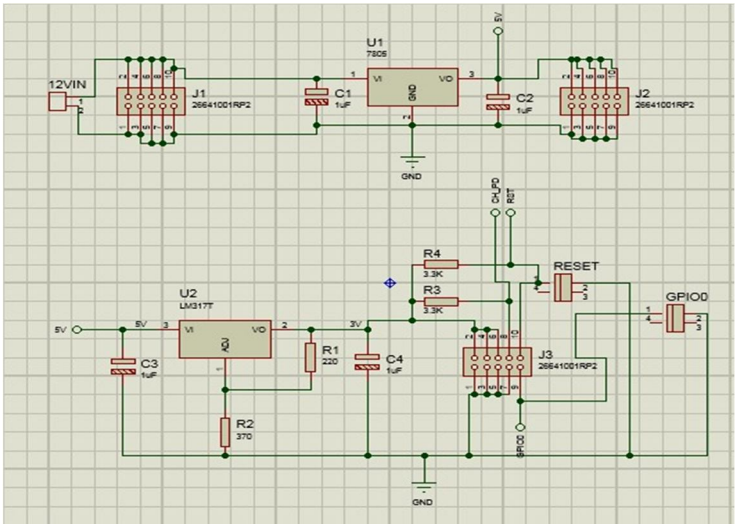


Fig. 3: Power Supply

IV. RESULT

A.The main task of our Project is Three part

The Robotic Base Putting different weights on it has tested the robotic base. The following table gives an idea of the testing that has been done on the base

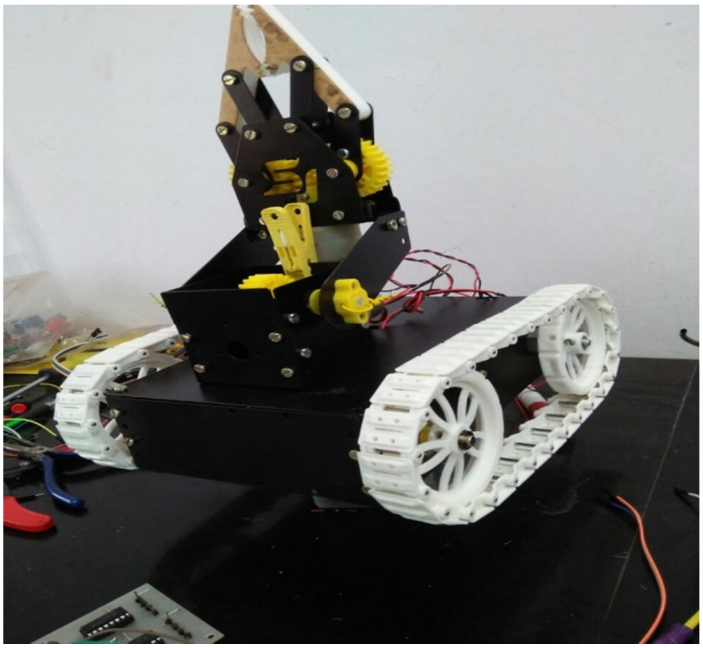


Fig. 4: Robot Prototype

B.The DC Motor Circuit

The DC motor has an H-Bridge circuit, which has been constructed using four relays. Each relay acts as a switch, which can be turned on or off using control signals from the microcontroller. The circuit has been tested on a breadboard by applying voltage and the control signal.

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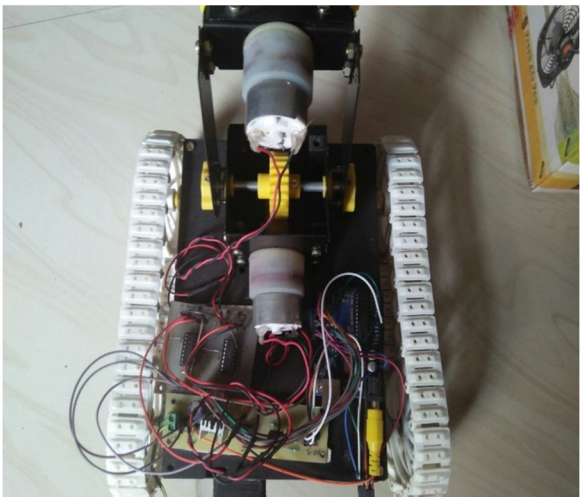


Fig. 5: Robot Prototype

C. Software Application

Checking the control signals that are generated has tested the software application. Connecting the control application serially, to Hyper Terminal on another PC has tested these signals.

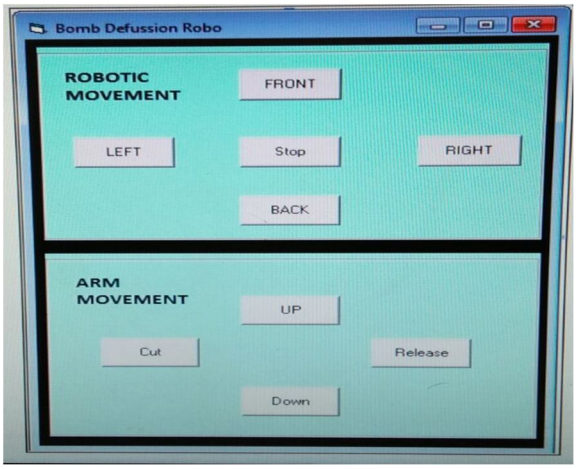


Fig. 6: Screenshot Application

V. CONCLUSION & FUTURE SCOPE

We are able to complete almost the requirements that we had specified for our project with basic movement of the robotic vehicles and its arm movement and the cutter movement and also the GUI module for controlling the robot. The Wireless Bomb diffusive automaton can offer nice service for the bomb diffusive squad, the military and therefore the police. to Illustrate, at one place it is utilized by the bomb diffusive squad, whereas another application is to produce upto date data in a very surety state of affairs The Wireless Bomb Disposal automaton has been designed in such how that it will cater to the wants of the bomb disposal squad, the military, the police and conjointly for the personnel WHO handle hot materials it's innumerable applications and might be utilized in completely different environments and eventualities. to Illustrate, at one place it is utilized by the bomb disposal squad, whereas at another instance it is used for handling mines. whereas another application is to produce up thus far data in a very surety state of affairs.

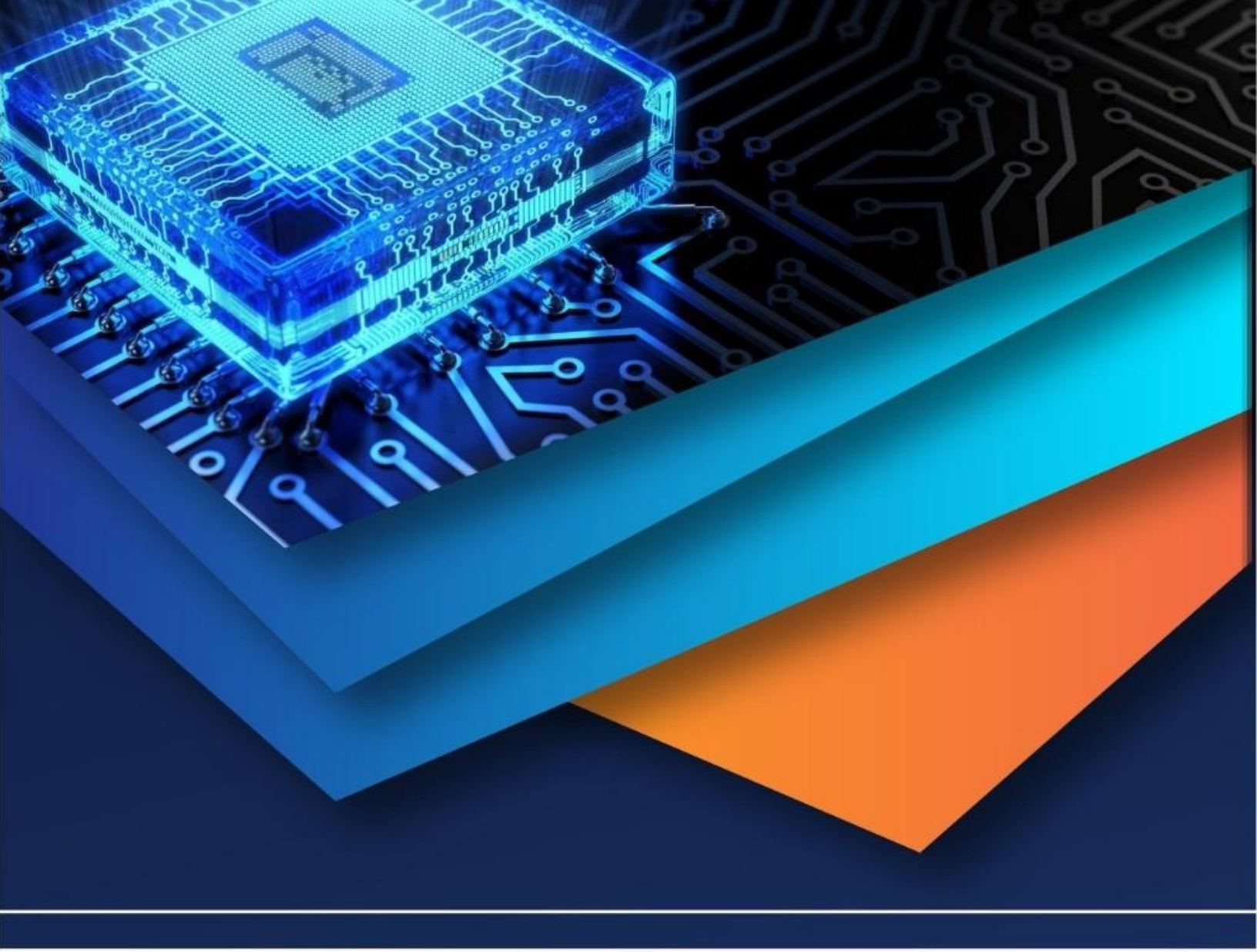
The system that we've got designed may be a operating image of a automaton, that ought to be compact, quick and correct. This image might not have the options and dependableness of the first style. it's solely being developed to confirm that the planning is possible, not impractical and might be enforced on a {way|a far} larger scale in a very additional economical way. At present, the automaton isn't a awfully manoeuvrable machine that's it's going to not offer the potency to upset the complicated objects or it's going to not have the aptitude to maneuver into tiny places, that is important demand. however it is wont to style such a automaton, which might be tiny in size, quick and correct in its movements.

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