Advanced Military Spying & Bomb Disposal Robot

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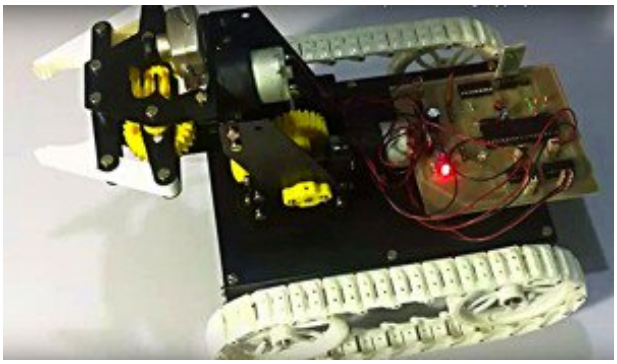
Abstract-*This system is very beneficial in areas where there is high risk for humans to en-ter. This system makes use of robotic arm as well as robotic vehicle which helps not only to enter an area involving high risk but also to pick whatever object it wants to. The sys-tem also includes night vision camera which will not only allow observing whatever will be recorded in day time but also during night. It also includes a primitive explosive detector which enhances detection of the bomb. The whole system is controlled via RF remote.*

The system sends commands to the receiving circuit attached on the vehicle through push buttons. The receiving circuit involves PIC microcontroller and a receiver which receives commands sent by the transmitting circuit. The remote consists of navigation keys and keys to control the camera and the robotic arm. All these oper-ation of the motors are controlled by the popular microcontroller from MICROCHIP COR-PORATION.

I. INTRODUCTION

A robot is a virtual or mechanical artificial. In run-through, it is generally an electro-mechanical machine which is directed by computer or electronic programming, and is thus able to do tasks on its own. Another common characteristic is that by its appearance or movements, a robot often conveys a sense that it has intent or agency of its own. Although the look and proficiencies of robot vary much, all robots share the feature of a mechanical movable structure under some form of control. This control of robot involves three distinct phase-perception, processing and action. In common the preceptors are sensors mounted on the robot, processing is done by on-board microcontroller or processor and task(action) is performed using motor or with some other actuators.

Here we introduce a new project named military spying and bomb disposal, this robot is used for pick the object in one place and place that objects in required places. Some industrial works are harmful for humans this robot is mainly used for reduce the risk process and consuming time and avoid labors. It is build by microcontroller, DC motor and wireless RF communication technology. The driver circuits for these motors are to be controlled using microcontroller with a control key panel.



II. WORKING

Researches and experiments in the field of robotics are progressing tremendously. Robotic technology has influenced most of the industrial and domestic areas and has given release to the humans doing heavy, risky and tedious jobs.

Transmitter section:

The Transmitter section of this system contains control keys for different functioning of the robotic system, an MCU and an RF transmitter. Output from the selection switch is directly connected to the MCU. MCU fed the digital data corresponding to the selected switches to the encoder for coding the data before transmitting. 2.4 GHz radio frequency wireless communication is used here to transfer the data of the selected switches. Here we use LED and buzzer for audio and visual indication, it indicate the status of control switches.

Receiver section:

Here we have a robotic system which contains a robotic arm placed on a robotic vehicle and are controlled in a wireless communication method remotely. The transmitted data is received by an RF communicator at the robotic system which transfers the received data to the micro controller. DC GEARED motors are used here for the different actions and movements of the vehicle robotic arm and grip. 6V DC motors are used here in both of its direction as per the requirement.

An arrangement to pick an item is attached with the arm and is also controlled by a DC motor. The robotic vehicle

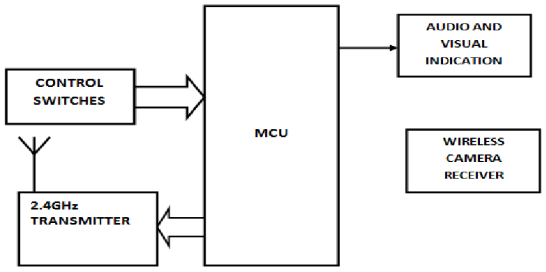
contains two DC geared motor of 12V for the different directional movements of the vehicle. 6V power supply is used for the arm and 12V power is used in the vehicle. Whole movements of all these motors are controlled in bi-direction by the MCU through IC hybrid bridge circuits. And the controlling instruction to the interfacing circuits are given by the selection switches at the remote controller. The system is used to pick an item from anywhere to a certain distance used in industrial and other purposes. Also a wireless camera interfaced with microcontroller for capture the images of receiver side. Status of our system can be display on an LCD screen interfaced with the MCU. Audio indication is included in the system for intimation.

III. RELATED WORKS

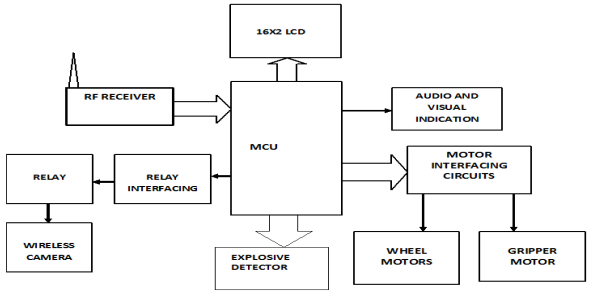
Massa, B., Roccella S., Carrozza C., Dario P. (2002) Design and Development of an under actuated Prosthetic Hand. Clumsy. (2011) .The bomb disposal robot that dropped a live grenade and then ran over it. Lecher, C. (2012) A New Robot Dismantles Pipe Bombs While Leaving Forensic Evidence Intact.

IV. BLOCK DIAGRAM

Transmitter:



Receiver:



IV. CONCLUSION

Researches and experiments in the field of robotics are progressing tremendously. Robotic technology has influenced most of the industrial and domestic areas and has given release to the humans doing heavy, risky and tedious jobs.

Here we are constructing a remote robotic pick and place arm with wireless control facility. Pick and place robots are widely used in industries to do jobs like sorting, packing etc. Our project includes an arm with movements each movement is controlled by a DC motor. The arm is placed in robotic vehicle so that we can move the arm from one place to another. So two DC motors are used for the vehicle. A remote control unit is constructed using RF communication modules.

Hence we have succeeded in making a robot that is more efficient and less costly than its rivals.

REFERENCES

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[4] Electronic Circuits & Devices:- J.B Gupta
[5] Solid State Electronic Devices:- Denu Streetman, Sanjay Banerjee