# Military Spying Robot

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***ABSTRACT---The possibility of the paper developed with a dream to see the spots we wish to see voluntarily in a military field. In this paper this thought is acknowledged at our fingertips. Robots are assuming a critical job in the military application. The vast majority of the work in the military is unsafe for person. In a war field or safeguard task a warrior needs to take his own specific manner to achieve the goal. The vast majority of the ways are perilous for a warrior. Consequently robot replaces the trooper. The paper is done to make a variant of spying robot that can empower us to watch the place of our advantage. The extent of the robot additionally helps it to be utilized as a covert agent robot. PIC 16F628A and PIC 16F877 are used for controlling all the processes. CCD camera is used to obtain real-time footages of the field. So in this way it will work in the way we acquire robot to work. To monitor the movement of the robot there is a transmitter which is attached on the robot. The explanation for manual control of the robot is that it won't be lost attributable to nonattendance of human inclusion. Notwithstanding long range applications it very well may be utilized as a government operative robot inside short distances.***

***Index Terms - CCD camera military, PICs, RF, spy robot, video transmission.***

## I. INTRODUCTION

The military is undeniably the primary customer of new advances and improvements in strategy, and is also often the sponsor of new improvements when it comes to envisioning new innovations in military settings. Numerous basic military technologies deployed out of the blue are now advanced to the piece of industrial robots. In any case, the importance of military autonomy and modern mechanical autonomy is still quite different. The military has special, robotic equipment while, in modern terms, the robot is a larger amount of a smart, adaptable, large-scale manufacturing machine. Later, the use of modern robots for military applications will always be imaginable. Cost and development of the specialized capacity of the innovative robot will build the enthusiasm of the military customers. In the research, we will demonstrate that the inspiration for the utilization of robots, inside the military and inside industry, is the substitution of people. The explanations behind this substitution are, as per the following: quality, cost and acculturation; be that as it may, utilizing an alternate methodology in each field, obviously [1].

Presently, the monitoring of International fringe zones is exceptionally overwhelming errand. The security forces observe the outskirts under antagonistic conditions. You get support from reconnaissance cameras officially assembled, but they cover exceptionally restricted zones. The cameras mounted viably at a settled position isn't of incredible use, as we can't change the camera look dynamic. Moreover, it is inconceivable to mount the cameras in the timberland regions as the trees discourage the camera's point of view [2].

The aim of structuring a robot is to encourage the individuals through giving security. The innovation utilized in this safeguard and security robot has various imperative highlights, for example, mechanical vehicle control by RF technology and Wi-Fi, naturally maintaining a strategic distance from obstructions in its way. A high caliber remote camcorder outfitted the security forces observe the outskirts under antagonistic conditions. You get support from reconnaissance cameras officially assembled, but they cover exceptionally restricted zones. The cameras mounted effectively at a settled position isn't of extraordinary use, as we can't change the camera look dynamic. Moreover, it is inconceivable to mount the cameras in the timberland regions as the trees block the camera's point of view with a stepper engine for the omnidirectional view. This sound and video stream got from the recipient unit can be utilized to gain real ground, as shown by the got signs. This robot can likewise be utilized to achieve places where individuals can't achieve like concealed spots, little sections. A definitive focal point of this structure is to give the individual the most extreme security [3].

We are using RF technology for data communication between the robot and the user. Through CCD camera we are going to obtain maneuvers real-time videos of the place where the robot is moving. Here PIC microcontroller is the brain of the system, controlling all the tasks and actions performed by the robot.

## II. LITERATURE REVIEW

The main idea to construct this robot is for the spying purposes, it for to keep an eye on people maneuvers in the battle ground or in the war days to reduce the chances of takeovers from the enemy side. Army people or entities have to face many dangers on their lives while spying on enemy or opposite entities. To overcome these ideas for this job robot will be more suitable and will decrease the risks of loss of human lives and can better spy illicit maneuvers of their opposite entities. Before entering to any doubtful districts we can send robot to check the status of that field so the military or army individuals don’t need to risk their life. These types of robot will be constructed in such a way that it would have a night vision camera mounted on it so in the

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darker places or in night it can record the view clearly. Camera will be controlled through remote by using an android application. Now a days there are many people who con construct an android application without any troublance. For communication we need to use some modules, if we use Bluetooth module it won't be much efficient for long ranges as the Bluetooth communication is weak not that strong. There are many different modules with their different specifications. For large ranges we can use Wi-Fi, Zig honey bee and many other can be used. Future scope of this robot is very vast, as it will continue to modify with time. For example it will be modified by planting gas sensors which will detect harmful gases in the surroundings. It can also be used as bomb diffuser in the future, bomb disposal team can have these robots which will help to diffuse bombs. The size of the robot can be scaled down to its minimal size [4].

The primary focal point of this exploration is the use of robots in wars and in harmony and their effect on the general public. This paper examines about advances utilized for spying and observation in various situations and condition. The creators examine the need and motivation behind building up the cutting edge robots for various, unforgiving and unpredicted condition of the war zones. They intend to present progressed controlling, self-ruling and rapid robots to serve for harmony in countries, as effectively as human controlled machines. Alongside these variables, they center on growing innovative weapons and hardware to be utilized. This government operative robot is easy to use. It can undoubtedly move, catch pictures and transmit them remotely on the checking screen where the warriors can see the present circumstance of the war field. The powers can design their guards as indicated by the risks been appeared through the robot. This robot is utilized for short separation reconnaissance for the security of that locale. The structure comprises of a vehicle having a camera for checking with a RF innovation for remote activities. The transmitter send the directions to the recipient for controlling the development of robot. The collector gathers and disentangles the gotten flags previously intensify the micro-controller which drives the motors through drivers. Remote of the camera can sends live sound and visual recording to a PC or a TV through a tuner card to the station of remote controller. Current military forces are using different kinds of robots for different applications going from mine distinguishing proof to spare exercises. In future, they will be used for perception and surveillance, coordination and support, correspondences establishment, forward-passed on antagonistic exercises and as strategic fakes to cover move by keeping an eye on resources[5].

The task is to build a mechanical vehicle which will be controlled through the android application which will be linked or connected to the remote of the camera for observation purposes. The camera which is attached on the robot it will continuously sends or transmits the data by special feature of CCD camera which is night vision competencies. This robot have a very useful application in the battle ground or war fields in form of spying purposes as an agent. As in this research paper, existing system is discussed where global system for mobile (GSM) – built mobile robot and Dual tone multi frequency build robot (DTMF) was used, these robots have realistic drawbacks for example, more vitality or energy is acquired to the system, the robot and the controlling unit must be in viewable pathway, for various Mobile phones, the control unit must be reassembled so that thusly the movement of the system is subordinate to cell phone. To end this requisite with a final goal, this research paper presents a voice over android application via Bluetooth connection. In this exam control on both remote correspondence between the versatile robots Android GUI application has been achieved. This framework can also be created by upgrading the execution and adding highlights. The improvement of this framework depends on the application used there. The frame may include highlights such as gas sensor, thermal image recognition, automated arm connection, and may be used in pick-and-place and so on should be possible. The improvement of this framework has been achieved by wide application zones, for example in army and legal authorization and industrialized and mischance organization criteria correspondence between the versatile robot Android GUI applications has been achieved [6].

This innovative robot system is constructed to perform various special tasks which is dangerous for human's life, which have his risk factor of human loss. On the whole we can say it can be used to perform task in cases where some crime happened and can be very important for military or army for keeping an eye on opposite entities or we can say purpose of spying. Some of the time it is important for a human which is bomb transfer master to incapacitate the gadget. For this reason, the master who uncovered the bomb will put on a defensive suit and protective cap, get a tool compartment of gear ,and walk the 100 or so meters to the site .To achieve the bomb's area ,it might be important to climb stairs ,creep through entry way or even rests to satisfy the mission. This framework spares the profitable existence of our officers. This robot can also be used as robotic arms and mobile robots to go into armed force territory. The entire framework is controlled through android application. In this paper, usage of IOT information arranges in military condition has been demonstrated utilizing Wi-Fi framework accessible on mechanical vehicle and android telephones. The robot which have automated arm and autonomously movable robot have numerous applications in this field. If the robot have these applications it will just not enter the danger zone and record but it can also move obstacles from its way and place things in front of itself to hide. Every step and performance will be tracked or can say recorded which will later analyze on big screen tenuously. This robot will also have a night vision camera which will allow the robot to see in darker places or in night time. This whole system would be fully controlled by android applications which will be easily accessible to the user. The Wi-Fi gadget and microcontroller which will get directions sends by the android application. The innovation can be enhanced further by offering directions to accepting circuit and control it by utilizing satellites correspondence. It will utilized in shopping centers for pickup, drop trolleys and car vehicle painting [7].

## III. WORKING

There are some spying robots which are controlled by remotes, spying robot also have a camera in it and it also transmits video material or information to the mediation group or spying group. The size of these types of robots are usually suitably small so can travel more efficiently. The task that we have to perform, we have moveable military mediator or spying robot which will be controlled by remote, we have used PIC 16F628A and PIC 16F877. These type of robots which should be handle in a secret manner it have camera which will also controlled by remote, batteries, an antenna.We have used two different PIC's to control the robot and whole system through remote. In our robot we have also used CCD camera (charged couple device), it is used to latch all information or data to the robot. On our remote controlled 4 bit LCD is attached on top of it, to watch the direction of user. If the robot have to travel in dark areas or in night we have set up a LED light on the CCD camera with all the lightning circuitry. RF module (Radio frequency modules) are also used in this robot for receiving and transmitting the signals from remote to agent robot, so the user can control the robots speed, turning of robot basically whole control over the robot.To have good control over speed and turning we have used brushed DC motors (three) with its motor driver l2989 (two) in our military agent robot [8].

### *A. Microcontroller*

As in figure 1, all the pin are defined with its use, as you can see in figure , 1,2,3,18,17 and 13 pins of PORT A are used to show output on remote which will be shown on LCD which is attached on the remote. These pins also have its control bits which are RA0, RA1, RA2, RA3, RA4 and RA7. Now we will come to port B, Port B have user input pins which are 0, 1, 2, 3, 4, 5 and 6, and the control bits of these pins are B6, B7, B9, B10, B11 and B12. These bits are used to control direction of motors and direction of camera.Bit B7 and B13 are information transfer carrying pins. At pin 14 power source is connected +5V DC. Pin 5 is the ground pin.

Now look at figure 2, l2989 motor driver is controlled by the pins of PORT B, from B0 to B7 through this PIC. Pins of these bits are 33, 34, 35, 36, 37 and 38. There are two ground pins 12 and 31. Power source on pun 11 and 30 +5V DC.

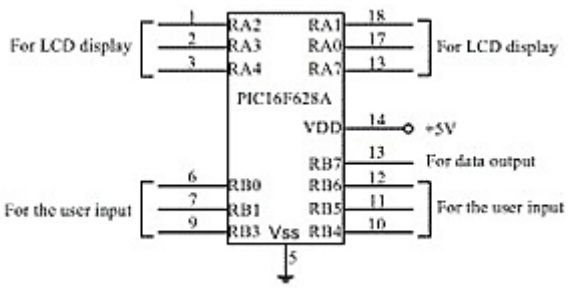


**Figure 1 PIC16F628A**

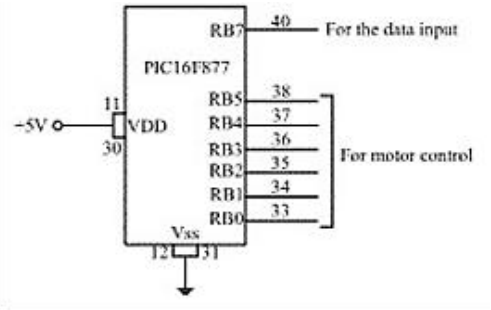


**Figure 2 PIC16F877**

### *B. L298N Motor Driver*

This motor driver that we have used is linked with PIC 16877 to get control on robot. From figure we can analyze that B5 AND B4 bits are connected to the motor driver's pins. Pin 5 and pin 7, Pin 5 is input pin and pin 7 is info pin. Pin2 and pin 3 are also used and it is linked with brush DC motors. This motor driver is also connected with PIC16F877 to improve accuracy of the robot. B3 and B7 bits are linked to motor drivers pin5 and pin 7 for receiving data and pin 2 and pin 3 are used for transmitting data information to the motors of the left wheel. B1 and B0 bits are connected to the motor drivers pin 10 and pin 12 for receiving data and pin 13 and pin 14 for transmitting data to the motor of right wheel. Power source of +12V is given to driver and the fact is we have used brushed DC motors of 12V in this system.

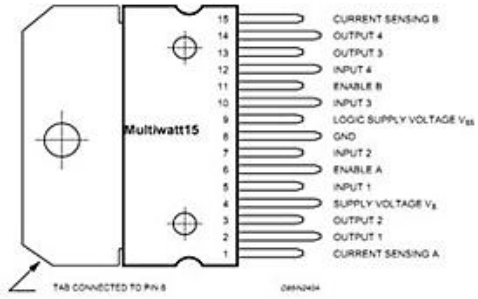


**Figure 3 L2N98 MOTOR DRIVER**

### *C. CCD Camera*

CCD camera, full form Charged Couple Devices camera.This camera have various applications in all modified picture capturing devices. The remote that control this camera have a feature of sound and video system. The range of CCD camera is clear up to 100ft and the picture resolution is about 1024x800. CCD acquires power of +12V through lead batteries. This camera also can change directions (left and right) to get full view. Drawback of this camera have is that it have no USB port. It needs card which is shown in figure 4.

**Figure 4 wireless CCD camera**

*D. Remote control:*

The remote controller comprise of six press buttons and LCD which are utilized for administrator's info headings. There is an antenna which is use to receive and transmit the signals. Remote needs at +9v power to control whole system. Remote control circuitry have PIC 16F628A in it, also Radio frequency module is implanted inside the remote for communication with the robot. LM7805 voltage regulator is use to control the PIC 16F628A microcontroller.This voltage regulator is very suitable to control the steady potential voltage, it is also connected to the battery. Remote controller sends signals to the PIC 16F628A and radio frequency module individually. Basically the working is, the micro-controller that we have used will record the clients commands and transmits to the RF transmitter then, RF transmitter directs the data or information to the spying robot which will received by RF receiver. As you can see in figure 5, whole circuitry of remote controller is shown.

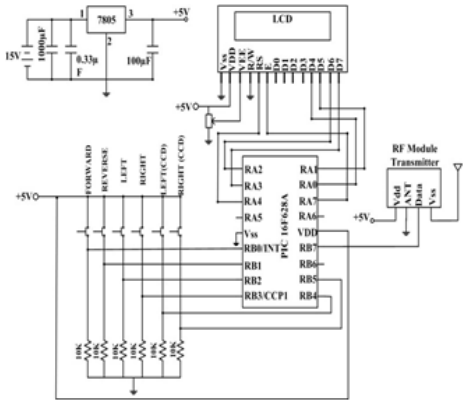


**Figure 5 remote controller circuit**

*E. Robot Vehicle*

This whole military spying robot consists of a CCD camera, we have four wheels, and three brushed DC motors, two L2989, RF module, two LM7805 and a micro-controller. The 16F877 micro-controller which is PLC that we have, we haves forty pins to operate the robot. One LM7805 is used only for this PIC 16F877 to give the steady +5v to the micro-controller. The use of PIC 16F877 is not just of communication between system and RF module but also gives command to the motor driver to move robot in a very precisely way on the function path or route. Accuracy is very important in these robots. In our robot it consist of three DC brushed motors with its power source. To run these motors we need motor drivers and we have used L2989 motor driver. We r the have used two L2989 one for the brushed DC motors and one for the CCD camera. In our robot as we have mentioned we have used brushed DC motors each motor is connected to the wheel. Each wheel can move in forward and reverse direction due to brush DC motors reverse capability.One set of a DC motor is connected to control the movement of a project. And other set is mounted on camera for camera movement. At the camera pivot where it moves to control its movement two limit switches are also connected on both the directions left and right. When the camera interacts with the limit switch it will stop moving, camera won't work U-turn proficiency when it contacts with the limit switch.

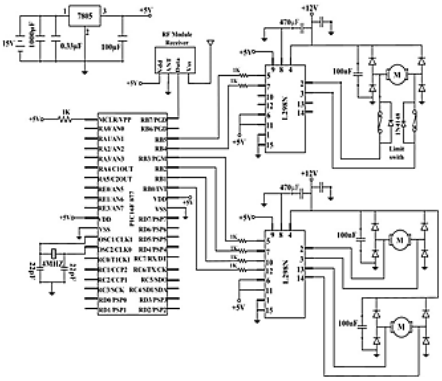

**Figure 6 robot vehicle circuit**

## IV. METHODOLOGY

As shown in figure 7, the system works in this way that firstly, the commands are given to the receiver via the remote which is than processed and transmitted to the driver circuits which moves the motors. Than the commands are passed to the camera's motor and the rare wheel's motors which then moves accordingly. The footages obtained through the CCD camera are real-time transmitted to capture card of the camera and then is displayed on the screen.

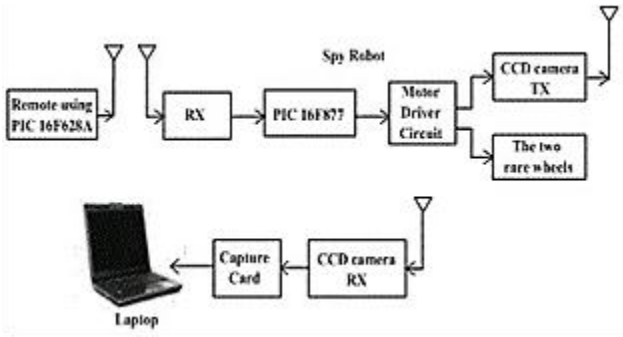


**Figure 7 Spy Robot overview**

Fundamental special coding is use in the modified PIC micro-controller. PLC's pins of Port A and PORT B are used as input and output pins. PORT A pins of PLC 6F628 are simply connected with the LCD which is attached on the remote controller. Pins of PORT B of PLC 6F877 are connected to the L2980 motor driver. The RB 7 is used for serial communication input and output pins and having a baud rate of 9600. This program also have the ability to execute the transmitting and receiving commands.

## V. RESULT

Amid tests, our plan works successfully. The essential metric for our paper would be precision. This has been tried to the best of our capacity. We have the ability to see exactly the things that are going on. As far as we can tell, our structure has created no disturbing influences. Depending on the course of the engine, the robot moves depending on the information we provide via the remote control. With the help of the camera, we can see the things going on in the region where the robot is hidden. By keeping the circuit direct, most customers have the capacity to use it effectively [10].

The goal of this paper is to limit human setbacks in psychological militant assault, for example, 9/11. The battle robot has been intended to handle such a brutal dread assaults. This robot is RF based, remote-controlled, and has every one of the controls like an ordinary vehicle. A remote camera was introduced to you, with the aim that it will screen opponents remotely, if required. It can quietly go into enemy zone and send us all the data through its small camera eyes. This undercover agent robot can show in star apartments, shopping malls, jewelry rooms, and so on, where there is risk of gatecrashers or scared mongers. Since human life is in every case valuable, these robots are the substitution of contenders against fear based oppressor in war zones [9].

## VI. DIRECTION FOR FUTURE RESEARCH

This spying robot can be modified and made it for prolonged ranged and can be make it more useful by consuming more operational procedures and modules like Wi-Fi module, raspberry pi. Future scope of this robot is very efficient it may have gas sensors to detect the harmful or hazardous gases in the surroundings. It can also be used as bomb diffuser and bomb disposal team can also use these type of robot in many ways and reduces the risk factor of human loss. Further, a terminating framework can be set on the robot, to fire any foe when he is spotted. The innovation can be enhanced further by offering directions to accepting circuit and control it by utilizing satellites correspondence. It will utilized in shopping centers for pickup, drop trolleys and car vehicle painting. Likewise, the framework can be made android based, where all controlling should be possible through an advanced mobile phone. There is a light called halogen light which is useful for the camera's vision which is attached on the robot. This robot can also be controllable by giving commands through voice it will response to the voice commands also.

## VII. CONCLUSION

The essential point of view of the military reconnaissance robot should make it straightforward. The administration operator robot can move without quite a bit of a track, getting pictures and transmitting them remotely, at that point the warriors give a recommendation about the dangers and conditions in the field of war. The robot moves relying upon the engines, which are reliant on the data we give about the transmitter (remote). RF signals are utilized as control signals. By utilizing these characters, the coding is done and signal is sent by the sender. At the beneficiary end, this decoded banner is given as a commitment to the drive of the engines. The robot is utilized for brief detachment and along these lines ensures the wellbeing of the territory. This makes the powers see precisely what's going on in the encompassing locale and to set it up as it ought to [5]. With the assistance of this proposed advancement, there is some help for our security controls in area of interloper. This mechanized structure can likewise be utilized in high height territories where it is troublesome for people, as a feature of our edges fall into high elevation areas. The proposed computerized structure can likewise be utilized in the look for the harmed individuals amidst disasters, for example, trembling, falling of the building and past in the mining zones [2].

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