

## DEVELOPMENT OF SPYROBOT FOR NIGHT VISION

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### ABSTRACT

*In this paper the result of our project a long range spy robot with night vision is generally for security issue. The spy robot which we have proposed is to monitor the enemy terrain thus our military people can stay in safer place to plan counter attack. Secondly disaster affected areas cannot be monitored regularly by humans. Our spy robot monitors the area where the human beings cannot go. Our robot is operated using DTMF technology thus using mobile which supports long range. It is difficult to monitor during night which is also solved here by using night vision camera which captures both picture and video. The captured picture and video is stored in the data base. In case of any blurred image can be solved by running a simple MATLAB code for image restoration.*

**Keywords:**Arduino, DTMF, Night vision, Restoration, Spyrobot.

### INTRODUCTION

Today military forces are looking for different types of robot for land mine, bomb detection, and surveillance and rescue operation. Thus robots reduce the risk of their casualties and to defeat the enemies. Our spy robot is based on DTMF technology to cover long range. The name spy robot defines the robot is used to spy the enemy terrain, as the size of robot is considerably small it is easy to spy. It can be guided by computer mobile and enabled to do task on its own.

Our project is controlling the robot by mobile, the major advantage it covers long range and can be operated from remote area. Now days wireless camera is playing very important role in security issue. Camera used in our project is wireless night vision camera. It can capture picture and video information through the camera during both day and night and send it to remote station through RF signal. Our aim behind this long range spy robot with night vision is mainly used in war fields and area of devastation. So our spy robot aim is to spy enemy territories to collect information from enemy terrain to save life of military people. Spying enemy territory also helps in planning attack against them from safe place, losing a robot to save our soldiers life is not a big issue.

Since, our robot is using night vision camera it is easy for us to keep in track of situation in enemy terrain even during night can be operated from remote station to monitor and collect the information in the form of picture and video .

## **II.RELATED WORK**

Spy robot used for surveillance and inspection purpose can also be constructed using microcontroller;a robot equipped with a camera transmits video data to the intervention troop controlled remotely from base station. Remote controller of spy robot is by PIC 16F628 and 167877.CCD camera is used which is set up with LED to work even during dark. [1]

Spy robot that can help us to observe the place we should be easy its path when needed which is controlled by keyboard of a computer system given audio, video information and able to convey info from night by adding extra circuitry which detects darkness and switch on the flash light automatically maximum range of this spy robot is 200meters. [2]

Due to increase in antisocial and terrorist activities it has become a reason that everyone is very much worried it is very necessary to control and monitor the activities as quick as possible. The smart robot used here is based on GPS (Global positioning system) uses Raspberry pi for security application is remote sensing. For the purpose of surveillance camera is attached with ultrasonic sensors maintaining distance and continuous tracking of location. [3]

People want to make their life easier,safely and enjoyable. Hence automation is most wanted intelligent system in residential apartments and commercial business. The drawback of traditional robots were problem with stairs, doorsills etc. The proposed robot is characterized with hopping capabilities. Robot is 9cm in height and 250gm in weight can hop over obstacle of size 4 times of robot size controlled by Zigbee protocol with mobile video sensor node. Help people in surveillance, security ,entertainment cooking, cleaning ,taking care of children etc.[4]

Implementation of robot technology and efficient enhancement in agricultural fields are not use extensively. The proposed robot is low cost agricultural architecture robots in agricultural field example for tomato is: Help the farmer to survey the frame area, takes care of tomato to plants time to time and to harvest the ripe tomato. Robot can be operated by farmer using RF wave for about 120m radius. Technology used is Bluetooth Robot is also equipped with can camera for purpose of survey. It also helps the farmer to cut the spotty leaves

## **III.PROPOSED WORK**

The proposed project Long range spy robot equipped with wireless camera having night vision can be used for spying/monitoring purpose. This long rang spy robot operates irrespective of distance of person operating it. A DTMF decoder is interface with arduino to control the movement of robot it is use two mobile phones one to control the robot and sends DTMF commands to another mobile on the robot vehicle. Arduino receives

commands with the help of motor driver that operates the movement of vehicle. A battery is used of power source using DTMF technology user can operator robot from any distance via phone call. The receiver phone just need to receive the call when call is made, command is send by the user through keypad. The robot is included with wireless camera to capture the area wherever the robot goes

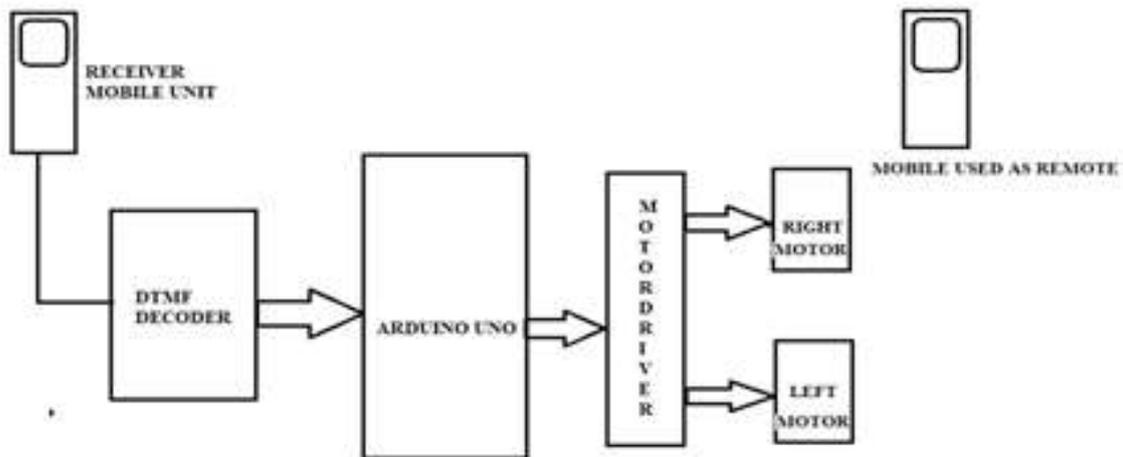
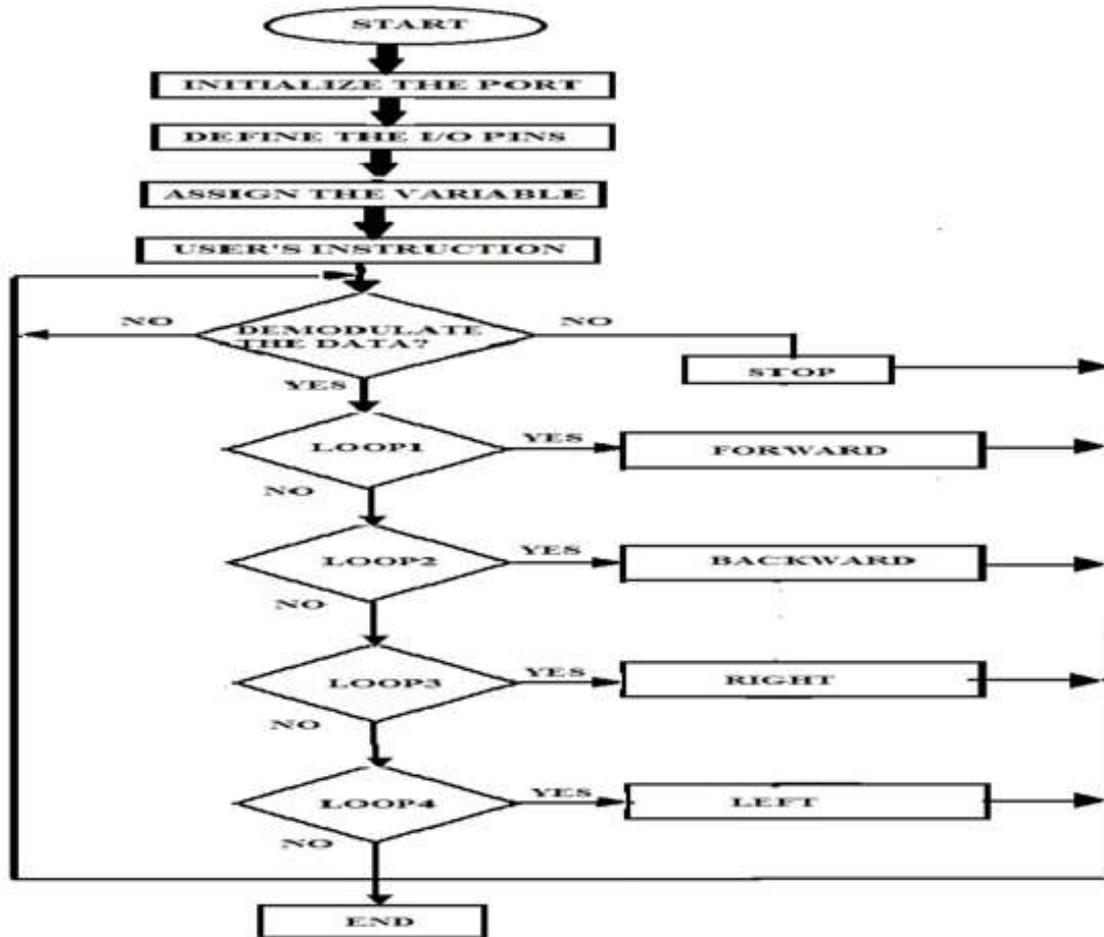


Fig.1 : Overview Block Diagram Of the System

Since our project also needed for night vision, the camera allows for transmitting the night vision video even during dark. The area capture by the camera can be viewed in the pc for reference. This system is used in war, sensitive area and terrorism. The vehicle uses android application to move the vehicle front, back, right and left direction. The entire control of robot is done remotely. It consists of transmitter section for send information to the receiver station. As said earlier the robot is operated by pressing few buttons at transmitter. Arduino is program to send relevant signals. Arduino is single board microcontroller makes the application more accessible current model consist of usb interface, 6 analog input pins 14 digital I/O pins.



Since Fig.2 -Program For Transmission, the camera allows for transmitting the night vision video even during dark. The area capture by the camera can be viewed in the pc for reference. This system is used in war, sensitive area and terrorism. The vehicle uses android application to move the vehicle front, back, right and left direction. The entire control of robot is done remotely. It consists of transmitter section for send information to the receive

#### IV.RESULT AND DISCUSSION

During tests our proposed project worked as expected. This spy robot is tested to the best of our ability. We could observe accurately what is happening, our system does not cause any harm. The major advantage of our project is it uses DTMF technology which supports long range compare to any other technology. There is no need of any extra circuitry for night vision, which helps us to collect information and survey even during dark environment. We are able to collect the information both pictures and video. If at all the collected information is blurred image restoration is done using MATLAB.

TABLE.1 ACTION PERFORMED CORRESPONDING TO THE KEY PRESSED

NUMBER PRESSED BY USER	OUTPUT OF THE DTMF DECODE	INPUT TO THE ARDUINO UNO	OUTPUT FROM THE ARDUINO UNO	ACTION PERFORMED
2	00000010	11111101	10001001	FORWARD
4	00000100	11111011	10000101	LEFT TURN
6	00000101	11111001	10001010	RIGHT TURN
8	00001000	11110111	10000110	BACKWARD
5	000000101	11111010	00000000	STOP

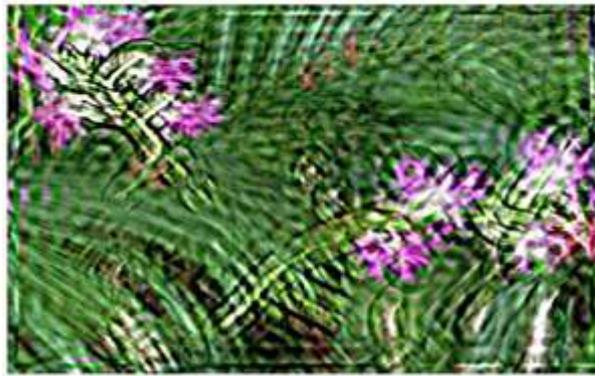


Fig.3 Image With Blurred



Fig.4 Image In Enhanced

## V.CONCLUSION

The idea of this paper was majorly for security issue in war field and there are several other area of devastation where human beings cannot enter. The spy robot with is proposed helps in spying the enemies terrain and

planning the counter attack from the safer place, to save the life of military people. Observing the disaster affected areas are also made easy using this robot. As we have used DTMF technology it can cover long range control by remote area. Another advantage of this spy robot is night vision that helps us to observe and survey even in during night without any extra circuitry.

## REFERENCES

- [1] Wai Mo Mo Khaing, Kyaw Thiha, "Design and implementation of remote operated spy robot control system", *International Journal of Science, Volume 3, issue 7 July 2014*
- [2] Mr. Lokesh Mehta, Mr. Pawan Sharma "Spy Night Vision Robot with Moving Wireless Video Camera". *International journal of research in engineering technology and management (IJRETM), ISSN 2347-7539.*
- [3] Souvik Saha, Arok Singh, Palash Bera, "GPS based smart spy surveillance robotic system using Raspberry Pi for security application and remote sensing," *2017 8th IEEE Annual Information Technology.*
- [4] Guangming Song, Kaijian Yin "A surveillance robot with hopping capabilities for home security," in *IEEE Transactions on Consumer Electronics, (volume. 55, issue:4, November 2009).*
- [5] Arnes Sembiring, Arif Budiman, Yuyun D Lestari, "Design And Control Of Agricultural Robot For Tomato Plants Treatment And Harvesting" *journal of physics, volume 930.*
- [6] Dhiraj Singh Patel "Mobile Operated Spy Robot" *International journal of emerging technology and advanced engineering (IJETA), 2013*
- [7] A. Levin, Y. Weiss, F. Durand, and W.T. Freeman. *Understanding and evaluating blind deconvolution algorithms. In CVPR, 2009. Efficient marginal likelihood optimization in blind deconvolution. In CVPR, 2011*