

## Cell Phone Operated Search Vehicle With Wireless Video Camera

Nisha D. Wanjari <sup>1</sup>, Dr. Shailaja Patil <sup>2</sup>

<sup>1</sup> (PG Student, Department of Electronics and Telecommunication, Rajrshi college of Engineering, Pune, India)

<sup>2</sup> (Faculty, Department of Electronics and Telecommunication, Rajrshi college of Engineering, Pune, India)

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**Abstract:** In this paper, we have present how to control the Robot using DTMF technique. In today's environment Reliable surveillance is basic need. hence we need system should be user friendly, cost effective, efficient, and flexible for further improvements. We have designed a robotic system whose direction of motion can be controlled by simple wireless phone, which makes use of DTMF codes. Now remotely operated vehicles are mostly needed in health application , military applications. It is difficult for robots that are used in military technology are quite difficult to become fully intelligent. Our cell phone operated search vehicle is also one type of robot. One can control it using the handset of the wireless phone. It has a wireless camera that transmits an actual video at the operators monitor. The system consists of main blocks that are wireless phone i.e mobile, microcontroller (AT89S52), DTMF receiver (CM8870PI), wireless audio video camera, Motor driver IC L293D, battery for power supply, TV or PC with TV tuner Card to monitor

**Keywords:** search vehicle, mobile operating robot.

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### I. INTRODUCTION

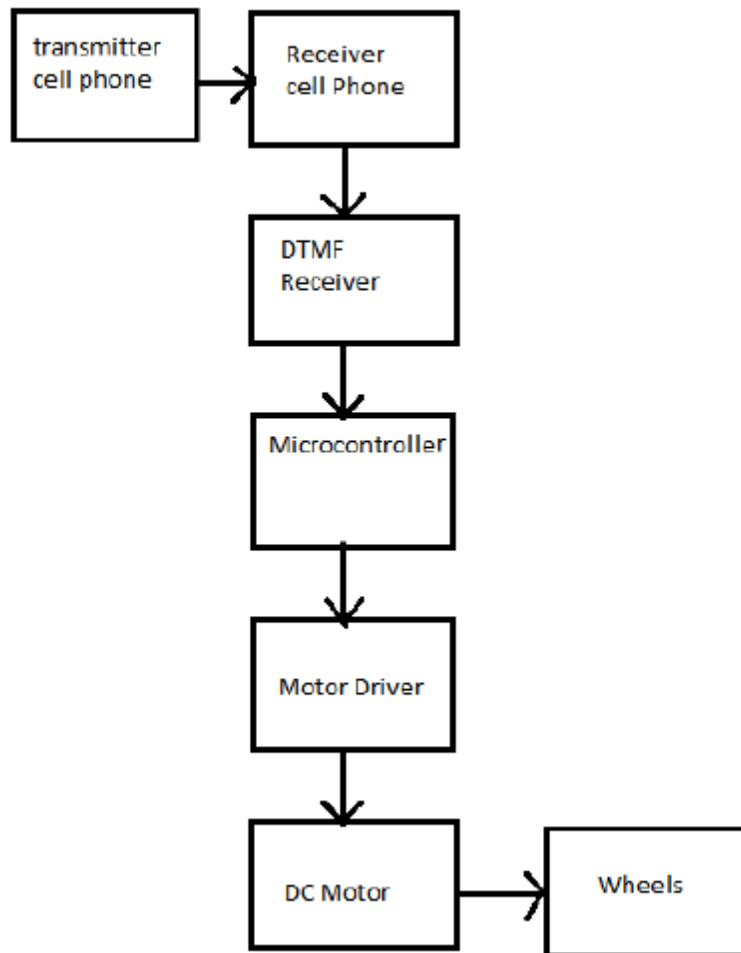
Today man has made tremendous progress in various fields such as robotics, electronics, education, entertainment etc. The knowledge of these fields can be combined together to make certain end-products can be used in the situations and conditions where the capacity of human fails to reach. situations like long duration observations of the lives and activities of animals in the dense forests, hilly regions, under water and conditions like high temperature areas, high altitude areas, battlefields etc. These situations and conditions are those which are either inaccessible or very dangerous for work. Hence man has made devices applying the knowledge of these fields which are helping him to carry out this difficult task.

Our Project is cell Phone Operated search vehicle with wireless video camera. In this Project Two cell Phones are used Where one cell phone is used as transmitter and other one is used as receiver. The Normal Functioning of cell phones is used in this project and No special modification are made in the cell phones. the search vehicle is nothing but the robotic vehicle which is operated with the help of Microcontroller, DTMF receiver IC, DC Motors battery etc, This robotic Vehicle is connected with the receiver cell phone through the simple ear phone cord. The received instructions are properly decoded in the microcontroller with the help of programming language i.e. EMBEDDED C and after execution they are converted into the movement of robotic vehicle. The wireless video camera is mounted on the robotic vehicle which gives our project wide range of applications. wireless camera which acts as a transmitter captures the live connected either to a TV or to the PC with TV tuner card where we can view the live action or records the events for later viewing

### II. LITERATURE SURVEY

#### 2.1 Vehicle Part:

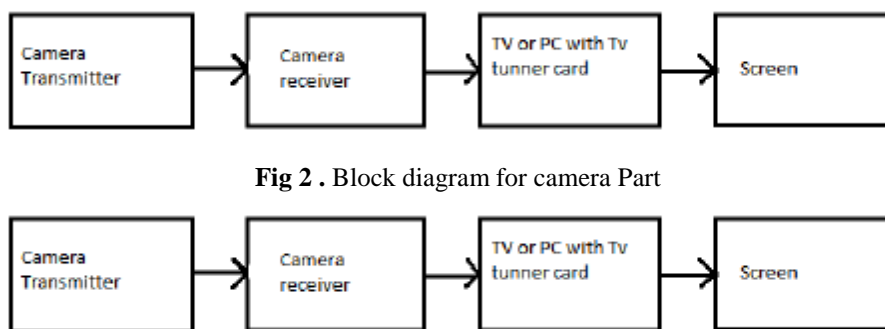
The transmitter cell Phone used for sending instruction to vehicle for desired movement and Receiver cell Phone is used for receiving instruction from the transmitter cell phone and is connected with the vehicle using earphone cord the DTMF receiver is 18-pin IC having internal decoder which uses digital counting technique for detection and decoding of DTMF tone pair into a 4-bit code the Microcontroller which used here is 40 pin IC with in-system programmable flash memory where programme is written for proper operation of the vehicle. The motor driver is a 16 pin IC which designed to accept standard DTL or TTL logic levels and drive inductive loads such as DC motors and stepping Motors. the DC motor is simple electric motor that uses electricity ad magnetic field to produce a torque .the torque produce in the DC motor s used to rotate the rotor which is connected to wheels of the vehicle with the help of shafts.



**Fig 1 .** Block diagram for Vehicle Part

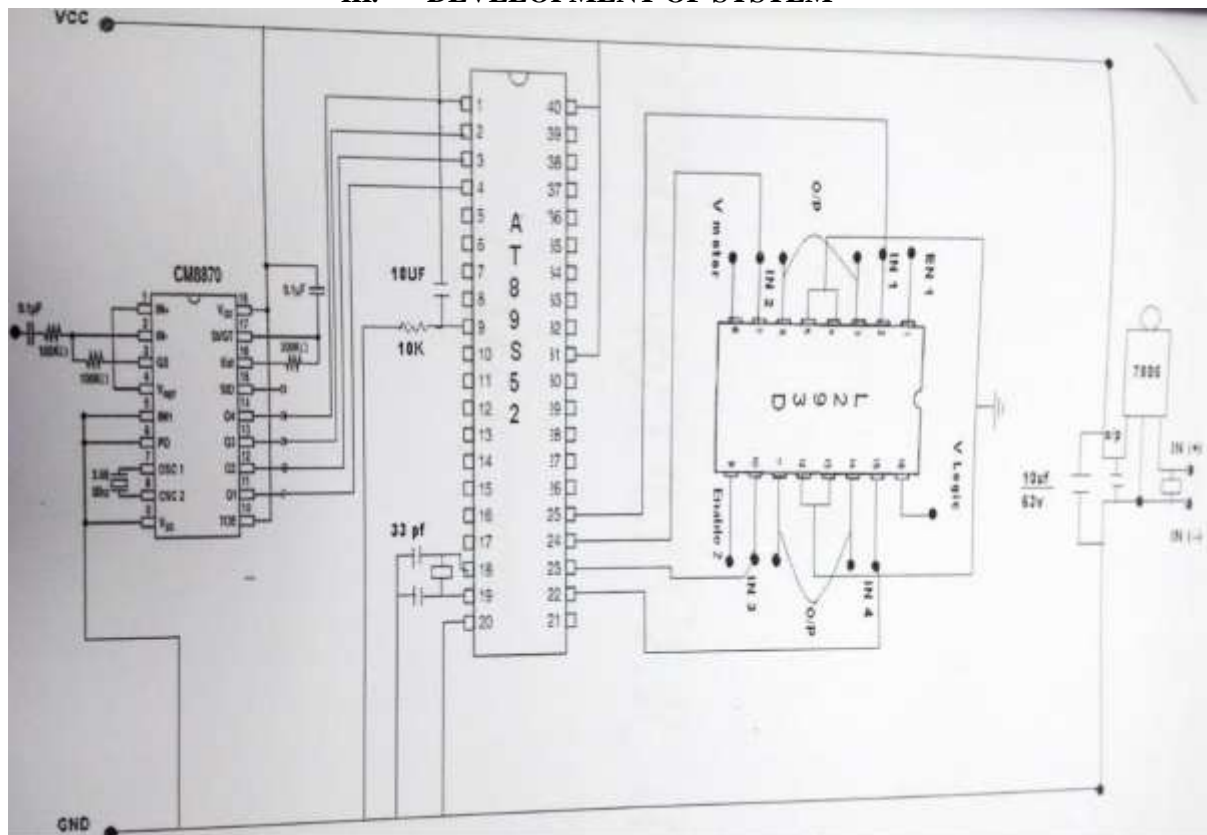
**2.2 Camera Part:**

The Camera transmitter is nothing but the camera 1G with the microphone is used to capture the audio and video signals from the site and transmit them to its receiver. the camera receiver part is used to receive he signal sent by camera transmitter and is connected with the proper assemble for viewing as well as recording. The output devices that are used here is TV or PC with a TV tuner card this device is connected with the camera receiver as well as the display where the input from camera can be sent directly or can be recorded for later viewing.



**Fig 2 .** Block diagram for camera Part

### III. DEVELOPMENT OF SYSTEM



**Fig. 3.** Circuit Diagram

#### Working Of Circuit:

Initially Vehicle part is set. The cell Phone number of receiver cell phone is dialled from the transmitter cell phone. The call on the receiver cell phone can be received either manually or automatically depending on the earphone setting in the receiver cell phone. When the two cell phones are connected with each other, the DTMF tones of the keypad of the transmitter cell phones are received by the receiver cell phone as the same DTMF tones. The DTMF tone which is received on the receiver cell phone is fed to the DTMF receiver IC with the help of earphone cord. CM8870PI is the DTMF receiver IC used which provide full DTMF receiver capability by integrating both the band split filter and digital decoder functions into a single 18-pin DIP. It uses internal 4.16 decoder which uses digital counting techniques for the detection and decoding of DTMF tone pairs into a four bit code. DTMF receiver IC has 4 outputs lines which are directly connected to inputs pins of the microcontroller AT89S52 IC. So when any key on the cell phone is pressed, its DTMF tone is converted into the equivalent binary 4-bit code in DTMF receiver IC and is given to the microcontroller.

In the microcontroller the programme is written in the language EMBEDDED C, which accepts the 4-bit binary code from the input pins. this programme converts the input 4-bit code into corresponding 4-bit code and give it on 4 output lines of microcontroller. The 4-bit code on the output pins of microcontroller is given to the 4 input pins of motor driver IC L293D. The same 4-bit code is produced on 4 output pins which drives the inductive load that is DC motors. In the microcontroller programme, the output 4-bit code is assigned to the output pins so as to get the movement of robotic vehicle in the desired direction. 6V battery is used to provide the power supply to robotic vehicle including IC's such as DTMF receiver IC CM8870PI, microcontroller AT89S52, motor driver IC L23D, etc.

Wireless video camera is then mounted on the robotic vehicle using proper assembly. Wireless camera consist of an inbuilt transmitter with a microphone which gives us video as well as audio signals from the sites. These signals are then received by the camera receiver using RF technology. The camera receiver consists of an antenna which receives the RF signals from the camera transmitter, a tunner which helps in fine tuning between

the transmitter and the receiver. It also consists of AV ports through which the receiver can be connected to TV or PC with a TV tuner card. The final images of the sites are displayed on the screen of TV or PC. The use of PC gives us an additional feature of recording the videos for later viewing. Thus, the robotic vehicle mounted with wireless video camera can be controlled from remote locations using cell phone by simultaneously watching the video on the PC which is transmitted by the camera.

#### **IV. APPLICATIONS**

1. This search vehicle can be used for capturing the activities of number of animals, insects, birds etc living in dense forests, deserts, hilly regions etc.
2. By making proper improvement and advancements in the design of this vehicle, this robotic vehicle can be operated in the battle fields or during wars thus eliminating the human casualties
3. This search vehicle can be efficiently used for gathering useful information on the various critical conditions such as location of hostages and terrorist in case of terrorist hijackings or attacks.
4. This search vehicle can also be effectively used in case of earthquakes and other natural calamities where generally large number of people get caught under debris and other dangerous situations.

#### **V. CONCLUSION**

We can conclude that our project "Cell phone operated search vehicle with wireless video camera" is Simple and easy to operate, highly versatile, compatible, cost effective, easy to install, requires less maintenance, multifunctional device

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