Mobile Controlled Spy Robot

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Abstract:
In this project, we present the controlling of a Robot using DTMF technique .The robot   is controlled by a mobile phone that calls the other mobile phone attached to the robot. In the course of the call, if any button is pressed, the tone corresponding to the button pressed is heard at the other end. This tone is called "Dual Tone Multi Frequency tone (DTMF)".Using DTMF code, direction of motion of the robot can be controlled by mobile phone. The above system can be used for military purpose as 'bomb detector' and as 'spy robot' and also for surveillance.

I. INTRODUCTION

A Robot is a virtual artificial agent. In practice, it is usually an electro-mechanical machine which is guided by computer, mobile or electronic programming, and is thus able to do tasks on its own. Conventionally, wireless controlled robots use RF circuits, which have drawbacks of limited working range & frequency range, use of mobile phones can overcome this limitation. Here is a Mobile operated spy robot circuit which can be controlled by using mobile phone.

It can capture audio and video information from the surroundings and can be sending to a remote station through RF signal. The Mobile operated spy camera robot has been designed in such a way that it can fulfil all the needs of military, police and also for personal security . It has countless application and can be used in different environments and scenarios. For instance, at one place it can be used by bomb disposal squad, while at another instance it can be used for handling mines.

While another application can be to provided up to date information in hostage situation. The robot is made for purpose by military operation spy robot for navigator in forest. The mobile operated robot is a very small application of DTMF technology. Here, we are showing you the method of using the DTMF to operate robot because the robot is operated by mobile so the range of robot communication is not limited. It just depends on the network of mobile and in the present scenario, the mobile network is everywhere.

II. DTMF

DTMF (Dual Tone Multi Frequency) better known as touch-tone is a system of signal tones used in telecommunication. Applications include voice mail, help desks, telephone banking, etc. There are twelve DTMF signals, each of which are made up of two tones from the following selection:

697 Hz, 770 Hz, 852 Hz, 941 Hz, 1209 Hz, 1336 Hz, and 1477 Hz. The tones are divide into two groups (low and high), and each DTMF signal uses one from each group. This prevents many harmonics from being misinterpreted as a part of signal.
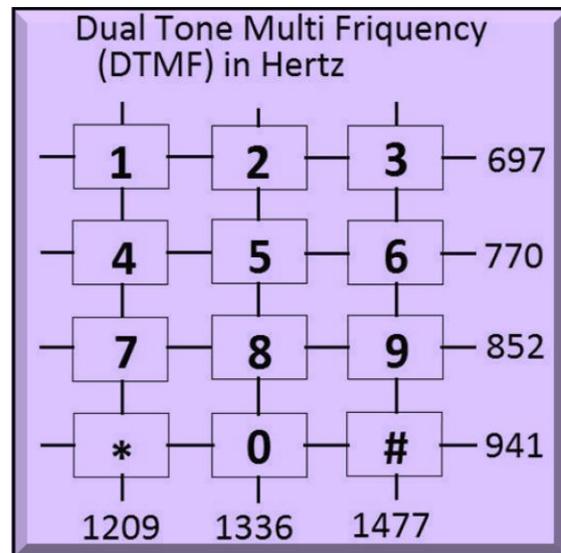
III. DTMF DECODER

The DTMF tone is decoded by DTMF decoder that is CM8870 that gives a four bit data at the output of decoder. Now this four bit data can be used for making the decision as for e key pressed on the mobile keypad the data have different for a different key
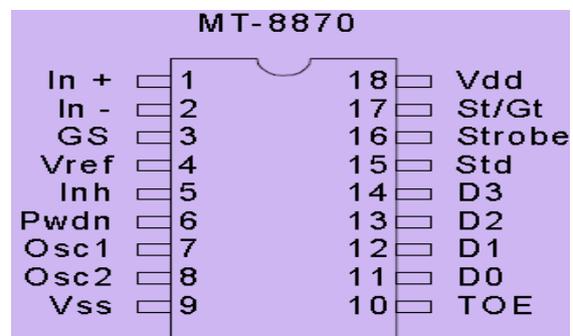
PIC 16
PIC is a family   of microcontroller made by Microchip Technology, derived from the PIC1650 originally developed by general instrument's Microelectronics Division. The name PIC initially referred to *Peripheral Interface Controller*.

The first parts of the family were available in 1976; by 2013 the company had shipped more than twelve billion individual parts, used in a wide variety of embedded systems. These devices feature a 14-bit wide code memory, and an improved 8-level deep call stack. The instruction set differs very little from the baseline devices, but the two additional opcode bits allow 128 registers and 2048 words of code to be directly addressed. There are a few additional miscellaneous instructions, and two additional 8-bit literal instructions, add and subtract. The mid-range core is available in the majority of devices labeled PIC12 and PIC16. The first 32 bytes of the register space are allocated to special-purpose registers; the remaining 96 bytes are used for general-purpose RAM. If banked RAM is used, the high 16 registers (0x70–0x7F) are global, as are a few of the most important special-purpose registers, including the STATUS register which holds the RAM bank select bits. (The other global registers are FSR and INDF, the low 8 bits of the program counter PCL, the PC high preload register PCLATH, and the master interrupt control register INTCON.) The PCLATH register supplies high-order instruction address bits when the 8 bits supplied by a write to the PCL register, or the 11 bits supplied by a GOTO or CALL instruction, is not sufficient to address the available ROM space.

Figure.1.The four amplifiers are usually used in pairs forming an H-bridge. Power supply: +5V.Max. Power: 25W
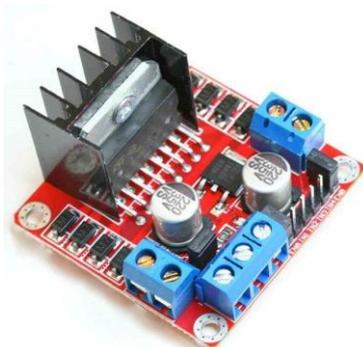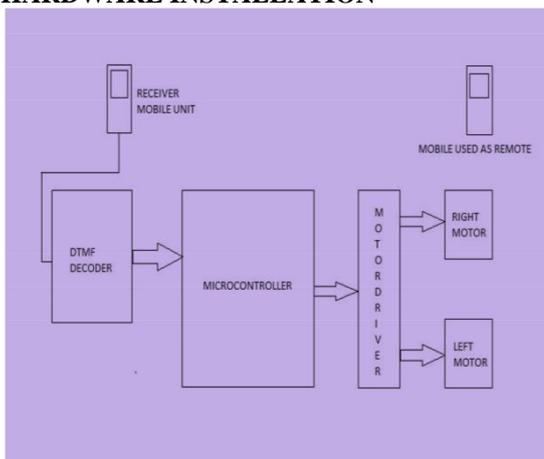

Figure.2. Motor Driver Set

HARDWARE INSTALLATION

In this, the robot is controlled by a mobile phone that makes a call to another mobile phone attached to the robot. In duration of this call, if any key is pressed a tone corresponding to the key pressed is heard at the other end called „Dual Tone Multiple frequency (DTMF) tone. The robot receives these tones with help of phone stacked in the robot. The received tone is processed by the microcontroller with the help of DTMF decoder IC CM8870. This ice sends a singles to the motor driver IC L293D which drives the motor forward, reverse...etc the microcontroller output is not sufficient to drive DC motors, a high voltage and high current drivers are required. The L298N is a high current half H- driver designed to provide bidirectional drive currents of up to 600 mA at voltage from 4.5 V to 36V. It will become easier to drive dc motor with such driver. In this we are using a wireless camera. Now these types of cameras are commonly available in the market. It works on 12 V DC supply. The 12 Volt DC supply is taken from battery placed in a robot. The camera has a receiver, which is placed on the remote station. Its output signals are in the form of audio and video. These signals are directly connected to a TV receiver or a computer through a tuner card.

IV. FUTURE SCOPE

Integrated factory automation systems, to which robot technology is key, affect nearly all types of manufacturing. In the near future, productivity and competitiveness in these industries will depend in large part on flexible automation through robotics. And further future enhancement are:- Compact design, Quick movement, Improved reliability, Night vision camera, Replacement of transmitter with low power transmitter & receiver with highly sensitive to reduce the power consumption or Robotic arm can be attached..

V. APPLICATIONS

Robots have wide-ranging commercial implications. Robots are extensively in the automotive industry, primarily for welding, painting and material handling applications. The electronics, aerospace, metalworking and consumer goods industries are also major robot users, and army in spying and in security based applications uses this type of robot, or useful at hostage situation, search and rescue.

VI. CONCLUSION

In our project, Robot is designed to move by our Command. The video and Audio can be seen on mobile or any other control unit. This project is very useful in the places where Humans cannot go. This is very useful in defence areas.

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