

DESIGN OF MINE DETECTION ROBOT USING GSM NETWORK WITHOUT MICROCONTROLLER

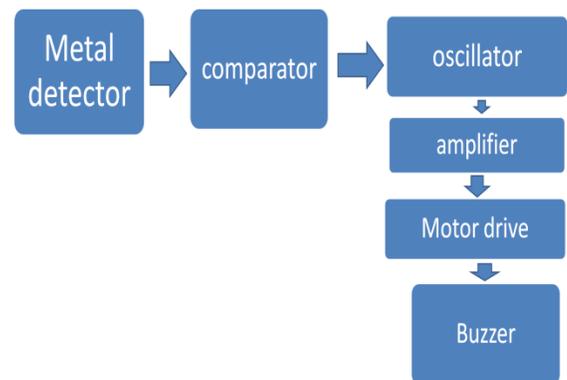
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ABSTRACT: Mine detection is main is the biggest challenge in the field of armed forces. It can be detected by humans but its a very risky Job to do. why because ,if its burst while detecting means We will lose one human life. As Everybody known's human life is more precious thing in Earth. How we cannot buy (or) Get back time we cannot buy (or) Get ready any Human life. So we can implement a advance technology in this field so that we can detect mines faster and easier. With these kind of Technology we can save the two precious things which ,I have mentioned above. Now a days many wireless robot has came with IR control, transmitter and receiver is also used . But these IR controlled sensors ,transmitter and receiver can be controlled within only affordable range. With small range it is not much useful. IR which follows line of approach pointing the remote so when the robot is in obstacles and barrier the connection is not highly possible. So we have designed a robot with GSM network without microcontroller with GSM Network we can access through long range so that distance is not a reducing factor which will not affect a system. Micro controller is not used because to reduce cost and sometimes micro controlled programs may get interrupted.

have constructed in a way that when a number " 6" is pressed it moves forward . similarly when "9" means it moves in backward . and "4" and "2" is used for left and right movement . which is for direction control. so it has to separate the sound. Two motor drives has been used in this namely "IC1 MT8870" and another one is "IC2 L293d" are the two drives which the motor is been connected. along to this model the land mine detector is attached.

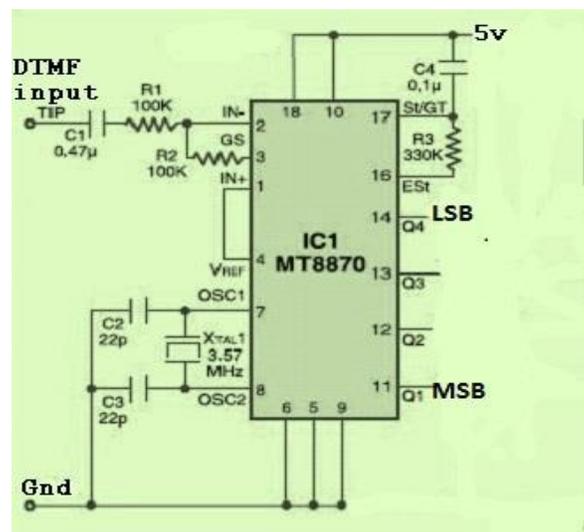
BLOCK DIAGRAM FOR MINEDECTION



KEYWORDS: GSM Network, Mine Detector, IR sensor, Transmitter and Receiver, Land mine Detection .

INTRODUCTION

This Paper will briefly explain the working of GSM controlled Mine detection Robot which is operated without microcontroller. This robot is operated with DTMF is a acronym which is known as "Dual Tone Multi Frequency". The operator of the robot will have a cell phone in his hand which act as a transmitter. Two mobile phones has been used. That both mobile phone will act as Transmitter and Receiver . When the operating the cell phone in operator hand act as a transmitter and the cell which have attached to the robot module will act as a receiver. After detection of land mine the cell phone in robot act as a transmitter and other act as a receiver. Vice versa. we have add a filler section in this design. in order to separate the tone. we



This block diagram represents the working prototype of a mine detection robot with GSM controlled. Through a mobile phone which is in a operator hand is dialed to the another phone which is fixed in the robot. When mine detector detects a mine it will sent a signal to the phone which is in the of operator. (or). When the mine is detected it will send a signal to comparator then the comparator will send it to a oscillator. Then it goes to amplifier and the buzzer gets one. (or) when the mine detector detects it will send it to send a signal to motor drive. the buzzer which is connected to motor drive will sent a signal as"001" when the buzzer is connected to these pins and when it detects it will allow a current to the buzzer. And buzzer will warn us.

DTMF DECODER

In this MT8870 series DTMF decoder is used. This DTMF Decoder used to detect and decode 16 DTMF tone pairs . Which can stored as 4-bit data. The input is sent to a pin number "2". If the decoded signal is correct means the signal is transmitted to pin "11" through the pin"14" which is the input for the motor drive. In this a new technique called digital counting technique is used to count the all 16 DTMF one pairs as 4-bit data.

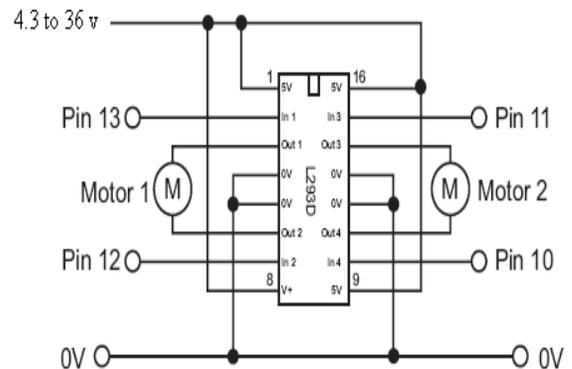
FILLER SECTION

It is necessary to separate the low frequency signal and high frequency signal. as the DTMF sent 16 tone pairs. This filtration is done by connecting two sixth order band pass filter to the DTMF controller. Based on the frequency it will filter to signals. Limiting is provided by producing giving high comparators which are provided with hysteresis which is used to filter low band filter. Then amplifier will sent a signal to motor drive. Based on the signal which are received the robot is moves forward (or) backward.

DECODER SECTIONS

This section is used to employ that the incoming signals from the DTMF are in correct frequency (or) not. This will also tell us whether it will corresponds to that frequency. This decoder is also used conform whether some other disturbances in air (or) the sound of birds and animals, even some vehicle noise which may also interrupt the frequency so that will taken care of this decoder section. which signal is received first will first goes to the output of the motor drive.

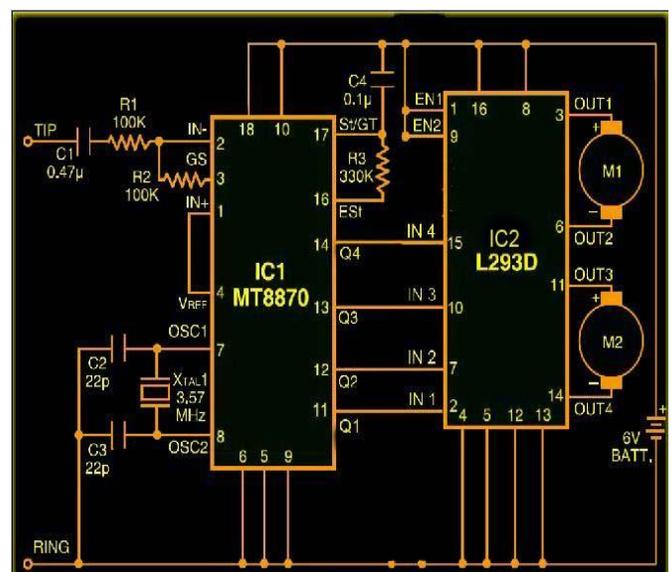
MOTOR DRIVE



This is a 16 pin motor drive which consist of 16 pins both for input and output. The L293 designed in such a way that it can drive up to 600 mA current at an voltage of 4.3v to 36v. This of driver is easy to operate dc motor easily compared to other motor drive. This motor drive consist of two DC motor . IN1 and IN2 and OUT1 and OUT2 are two pins for input a nd output for the motor drive. All the drive can be enabled by input 1. All the pins were given current by motor drive when the drive supply current to the motor the motor starts moving.

CIRCUIT DIAGRAM

The circuit Diagram for the GSM controlled robot without microcontroller. Two motor are connected to the drives. M1 is attached to right wheel of the robot and M2 is connected to left wheel of the robot. The working of this circuit diagram is discussed in following sections.



WORKING

This armed vehicle can have two wheels (or) four wheel. As four wheelers will produce high torque and high speed when its compared to two wheelers.

The circuit connections are made with bread board. The transmitter is attached to the cell phone which is in the hand of operator. And the receiver cell phone is attached to the robot chassis . Two motors are used in this robot and they are fixed to the bottom of the chassis. The motor drive L293D is capable of enough to control the two motor and motor IC1MT8870 is used why because in case if the other motor drive is malfunctioned. Any GSM controlled phone can be act as a Transmitter. But the operator should know the phone number of the receiver phone.

The DTMF tones are received by the receiver phone. The receiver phone should be in auto call attending mode. When the call is connected the operator can control the robot. The input size of DTMF circuit is 4-bit data. When the DTMF receives the code it passes the command to the motor drive and the output pins give current to the motor and the robot moves. we have constructed in a way that when a number " 6" is pressed it moves forward . similarly when "9" means it moves in backward . and "4" and "2" is used for left and right movement

When the mine is detected by mine detector it passes the signal to motor drive which is connected to it. The signal will sent in code like "001" means it should give current only to the 1 pin and the other pins will get input as 0v. so the buzzer is connected to the pin 1 get power supply it will alarm us where the mine is . In addition to this 3d mapping can be used to find where our robot is.

APPLICATIONS

These armed vehicle can be use in many surveillance areas. And it can be used for many scientific researches etc...

These robot can be used as bomb detection purpose also by fixing a bomb detector to it. This can used in spy purpose also by fixing live stream camera on it. So that the soldier can de through the mobile in their the operator hand.

FUTURE SCOPE

Though the microcontroller is not used in this project. we can add some additional feature to the robot with the cost of microcontroller. This can be implemented with the

password protection so that others cant access the robot. As the researches says password protection can be done without microcontroller. but it is not yet conformed that camera can be attached to this robot without using microcontroller. This will be the challenge when we use cameras without microcontrollers. Even if we can do that it can be achieved with high circuit complexity .

CONCLUSION

This robot was developed to overcome the limitations in the IR controlled cars in which the level of controlling frequency is low range of network. so GSM module will increase the range than the other sensors used in the now a days automated remote controlled robot. This system will be as much accuracy as microcontroller. Without using a Microcontroller in this system. This system can reduce the complexity of the circuit why because microcontroller is not used. This system is capable of detecting the mine and pick that mine from the ground which is digged in. The main purpose of this phone controlled DTMF vehicle is go to the places where the places humans cannot go. With the 3d stereovision it can be controlled any altitude of the sensor head to the ground surface. This above mentioned technology can be implemented in the any vehicle which are used for surveillance and spy purposes.

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