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Motor control using DTMF

Tanushree Patel Jyoti Hazare Tinkeshwari Bamne Sangeeta Barde Prof. Mukesh Sana
Department of Electronics and Communication Engineering
Shri Balaji institute of Technology and Management
Betul, M.P., India
thegeniusdrj@gmail.com

Abstract **- This venture chips away at the rule of DTMF tone order so got from any telephone to remotely switch and control electrical burden, for example, farming siphon, household and modern burdens and so forth. In businesses, the heaps are spread over an extensive region and in this manner, working these heaps is an extremely troublesome undertaking. In horticultural fields additionally, siphons and different burdens are associated over a substantial zone and henceforth it is troublesome for the rancher to work every one of the heaps and also for house hold loads. Thus to overcome these problems, the proposed system has been designed which uses DTMF technology to control the loads remotely.**

Keywords- **Control, Motor, DTMF, Embedded systems.**

I. INTRODUCTION

Now-a-Days Automation is playing an important role in each and Every field such as Industrial, Home, Rural and Agricultural Areas. Security is prime concern in our day-today life. Everybody needs to be as much as secure as to be conceivable. An entrance control frameworks shapes an indispensable connection in a security chain. The miniaturized scale controller based versatile worked speed control of air conditioning engine permits remote control of engine. This framework is best reasonable for agrarian purposes, home security and mechanization. The cell phones that we use in our everyday life have numerous highlights that are implanted in it. The significant element that we get to is to communicate.

This paper deals with the new innovative feature of using the mobile as a remote control. A DTMF mobile based application allows the farmers to switch on/control their pumping sets by pressing a few keys on their mobile. Thus assisting The rancher can screen and check accessibility of the power at the siphon, switch the siphon on/off and recognize on/off status of the water siphon from wherever. To control the gadgets from remote spot we are utilizing a DTMF strategy. DTMF (Dual Tone Multi Frequency) is utilized which changes over the ideal recurrence in to simple signs which is gotten by DTMF Decoder and given to AT89S52 microcontroller.

The microcontroller is utilized for exchanging the engine as per the recurrence gotten by the DTMF collector. By utilizing this task engine can be pivot clockwise, hostile to clock shrewd, anyplace from the planet. A 16X2 LCD is interfaced with microcontroller to have the presentation. Speed controlling is likewise accomplished for this engine. This task utilizes directed 5V, 1A control supply. 7805 three terminal voltage controller is utilized for voltage guideline. Bridge type full wave rectifier is used to rectify the ac output of secondary of 230/12V step down transformer.

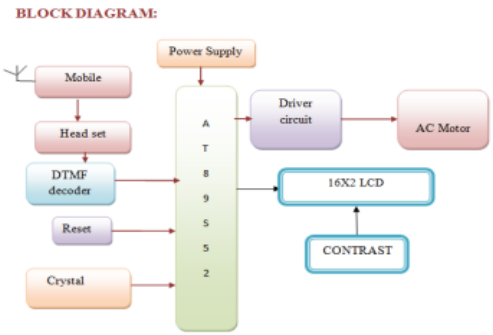

Fig.1 Block Diagram.

II.DTMF (DUAL-TONE MULTI-FREQUENCY)

Double tone multi-recurrence signaling (DTMF) is a telecommunication signaling system utilizing the voice-recurrence band over phone lines between telephone equipment and different specialized gadgets and switching focuses. [1] DTMF was first created in the Bell System in the United States, and moved toward becoming known under the trademark Touch-Tone for use in push-catch telephones supplied to phone clients, beginning in 1963. DTMF is institutionalized as ITU-Recommendation Q.23. [2] It is additionally known in the UK as MF4.

The Touch-Tone framework utilizing a telephone keypad gradually supplanted the utilization of rotary dial and has turned into the business standard for landline and portable administration. Other multi-frequency systems are utilized for inside motioning inside the phone organize. The

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AUTOVON telephone arrangement of the United States Armed Forces used these signs to declare certain benefit and need levels while setting phone calls. [7] Precedence is as yet an element of military phone systems, however utilizing number blends. For instance, entering 93 preceding a number is a need call. Present-day employments of the A, B, C and D motions on phone systems are not many, and are selective to organize control. For instance, the A key is utilized on certain systems to spin through various bearers voluntarily. The A, B, C and D tones are utilized in radio telephone fix and repeater tasks to permit, among different utilizations, control of the repeater while associated with a functioning telephone line.

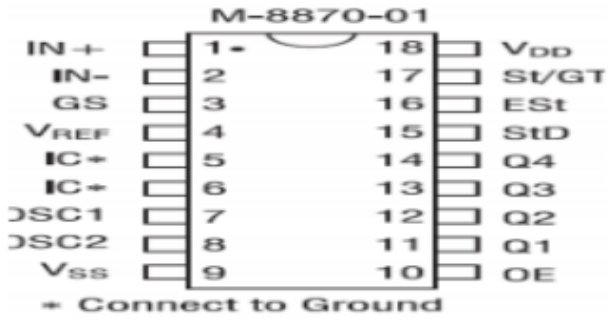

Fig.2 Decoder.

2. Power Supply - The yield from transformer is 9V Ac we require for our circuit since all the circuit work just DC. So with the help of rectifier we rectify & filter this signal so as to get pure DC from this circuit. Out from rectifier & filter circuit is unregulated so by using regulator output from this is fixed 5v is maintained by this block.

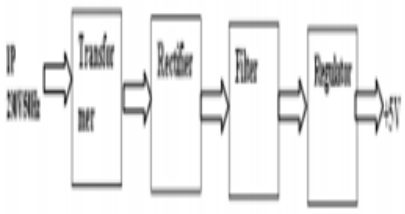

Fig.3 Block Diagram for Power Supply

2. AT89S52 Microcontroller- AT89S52 Microcontroller The AT89S52 is a low-control, elite CMOS 8-bit small scale controller with 8Kbytes of in-framework programmable blaze memory. The gadget is fabricated by Atmels high density nonvolatile memory innovation and is good with the business standard 80C51 smaller scale controller.AT89S52 is a ground-breaking miniaturized scale controller, which gives a profoundly adaptable and financially savvy answer for any installed control applications. The AT89S52 gives the accompanying standard highlights: 8K bytes of Flash, 256 bytes of RAM, 32 I/O lines, Watchdog clock, two information pointers, three 16-bit clock/counters, full duplex sequential port, on-chip oscillator, and clock hardware. Also, the AT89S52 is planned with static rationale for task down to zero recurrence and supports two programming selectable power sparing modes. The Idle Mode stops the CPU while permitting the RAM clock/counters, sequential port, and interferes with framework to keep working. The Power-down mode spares the RAM substance yet solidifies the oscillator, incapacitating all other chip capacities until the following hinder or equipment reset

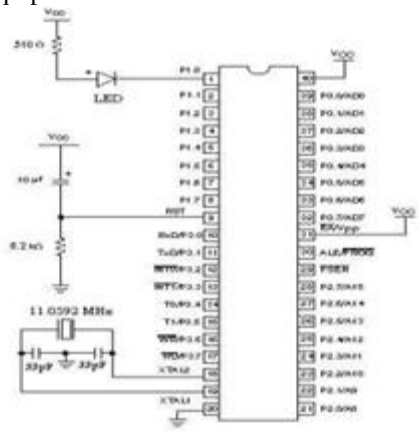

Fig.4 Pin Diagram of 89S52 Microcontroller.

2. DTMF Decoder 8870 - Dual-tone multi-recurrence flagging (DTMF) is utilized for media transmission motioning over simple phone lines in the voice-recurrence band between phone handsets and different specialized gadgets and the exchanging focus. The rendition of DTMF that is utilized in push-catch phones for tone dialing is known as Touch-Tone. It was first used by AT&T in commerce as a registered trademark, and is standardized by ITU-T Recommendation Q.23.

It is also known in the UK as MF4.Other multi-recurrence frameworks are utilized for inward motioning inside the phone organize. The DTMF keypad is spread out in a 4*4 lattice, with each line speaking to a low recurrence, and every segment speaking to a high recurrence. Pressing a single key (such as '1') will send a sinusoidal tone for each of the two frequencies (697 and 1209 hertz (Hz). The original keypads had levers inside, so each button activated two contacts. The multiple tones are the reason for calling the system multi frequency. These tones are then decoded by the switching center to determine which key was pressed.

Advantages

- Wireless Control from Remote places.
- Easy of operation.
- By using any mobile possible to on/off motor.

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- Speed of motor varies simple pressing remote mobile buttons.
- Display the status of current operation.

Applications

- This system can be used in industrial applications.
- This system can be employed in houses, where people often forget to switch off electrical appliances.
- This system can be used to control AC's to set the room temperature when we are outside.
- This system can be used for agricultural purposes.

Fig.5 Diagram of Project.

Advantages -The best way to make use of our technical knowledge is to wed our theoretical concepts with practical applications. Our project has numerous applications which provides an avenue to fire and gas accident in regard to the following-

1. The Home and Industry Safety using Fire and Gas Detection using GSM system is used to detect any fire, smoke or gas leakage in any premises, building or industry.
2. It is used for detecting any leakage of gas or smoke due to fire or any chemical reaction. Here some of the real-time applications are given below.
3. This project is used as a security system in applications like homes, Hospitals, hostels, industries.
4. Because of its low power consumption, reliability, portability this system used in other applications like smoke detection.It is very useful in-house for detecting LPG gas, which can cause huge loss of property and life.

Applications-some of the applications are given below-

- This project is used is used for fire, smoke or gas leakage in any building or industries.
- This system is used as a security system.
- It is used in homes hospitals, hotels etc.**: -**

III.FUTURE PROSPECT

We are living in an automated world or the age of automation. In every field the old manual system is replaced by their automatic counterpart with lesser error probability in use. Keeping the pace with time our project with automatic technology. Our project even includes a circuitry that detects the gas and fire. In our project we only focus on the detection of the gas leakage and fire but our project can be used for different applications.

IV.CONCLUSIONS

This project presents a DTMF based AC motor speed control and it is designed and implemented with Atmel 89S52 MCU in embedded system domain. Experimental work has been carried out carefully. The result shows that higher efficiency is indeed achieved using the embedded system. The proposed method is verified to be highly beneficial for the security purpose and industrial purpose.

Results- Speed control of motor using mobile phone is microcontroller based project work on low voltage circuit. In this work motor speed, motor ON/Off & Load is switched from anywhere from the world. In this if we call to our mobile circuit then following functions will be done If we press 1 then motor will ON with Low speed around 730rpm. If we press 2 then motor will ON with MID speed around 880rpm. If we press 3 then motor will ON with HIGH speed around 1200rpm. If we press 0 then motor will turn off. In this the speed of motor i.e. voltage control method by using mobile phone. In this work we use DTMF 8870 IC for detecting of mobile signal pressed by caller from remote place. The mobile output signal is RF this signal is converted in to binary digital form using this 8870 IC.

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