DTMF Based on Industrial Automation

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Abstract- *In this project, the industry is automated through the use of PIC microcontroller. The goal is to develop a separate, industrial automation systems, low-cost controllers, and implementing them in a real scenario. The cost of automating the whole system is very high. Therefore, the in-place to carry out all the schemes, the key of the modules is completely automated. The system consists of three modules, in order to ensure industrial safety and peace of mind. The sensors serve as the input modules and sends the signals to the controller, the controller for processing, logging, activity, leisure-time module. It also helps to reduce the amount of energy that is used and allows the user to feel more comfortable.*

I. INTRODUCTION

We use a lot of different types of communications, industrial control applications, devices, and industrial devices and other types of software. There are two types of communication we tend to use a piece of string, and the other is wireless. In wireless communication, we provide the signals to a wireless network using radio frequency (RF) and wired communication, for which we used a wire to a copper wire.

In this project, the Industrial Automation System that is built on the CALL", we are going to deal with our industrial units over the air. Another important feature of this project is that we are not going to use it for any micro-controller. Typically, many of the industrial equipment to be controlled by the switches. However, today is a industrial device to the automation of many of the techniques.

This article presents the industrial automation system based on DTMF tone with the help of a set. Dual-Tone Multi-Frequency (DTMF) is the signal to the system to detect the keyboard, the TOUCH. This is used for telecommunication signaling of analog telephone lines in the audio frequency band, the communication between the devices and the phone runs. HEAR is a short form of the sending of a multi-frequency. So, when you call customer service, they will ask you to click on a phone number. When you tap on any of your mobile telephone number and a specific action occurs, with the exception of a two-tone multi-frequency. When a button is pressed on the keyboard of the mobile device to act immediately to create the tones of two frequencies. This table shows the frequency of occurrence of the columns and rows of data.

OBJECTIVE

- The goal of this project is to implement a low-cost, highly reliable, and scalable system for hospitals and industry, as it can be used to remove the power on or off, in all industries, in the unity of the micro in order to achieve the hardware, the simplicity, low, short message service (SMS), and for your feedback, and voice dialling, and the like at any time of the transient state to change.
- These devices need to be controlled and turned on or off. In the majority of cases, this was done manually.
- At this point, you need to manage your devices more efficient and effective as at any time, from anywhere.

II. LITERATURE SURVEY

The goal of this project is to improve the performance of the equipment to the industry in Malaysia, as well as in medical institutions. In this project, we used a Dual-Tone Multi-Frequency(DTMF) technology. DTMF signalling, which is used for telecommunication signalling over analog telephone line in the audio-frequency band between telephone devices and other communication devices and switching centres. [1] The underlying principle is based on the ability of the DTMF (Dual-Tone Multi-Frequency) Technology to function as a remote control, in order to make the land rover traffic control.

It can create, TOUCH, equivalent to the code, or a numeric keypad, and then find the same number or code which corresponds to the speed dial (see Table 2.0). In particular, the DTMF generator will generate the two frequencies that correspond to that number, code and / or digital display, which will be transmitted via the communications network, to create a part of the transmitter, which are at the origin of the mobile device.

III. SYSTEM STUDY

EXISTING SYSTEM

It may happen that the input instruction, the order of a mobile phone, which is connected to the Internet via a GSM. In order to get in touch for more secure, the id will be provided, along with a password. In order to turn on/off any device that is on the controller side, connect to the mobile phone, which is included in the corresponding signal, and a password.

The tone is decoded by the DTMF decoder unit, which then converts it to a double value. In binary, the values of the new data with the data in the micro-checks that every note individually, and the corresponding output is to say, in the end.

That is, when the driver of a relay is switched on, your device is a controller, either lights up or flashes when it is needed. Our project is to use an auto-response facility, and, therefore, eliminates the need for a circular detector of the system.

PROPOSED SYSTEM

- Signal system in order to identify the buttons or the ok button, the speaking, the number is written to the button, or the keyboard, the TOUCH.
- Multi-frequency-on-the-set-in push-button telephone, the keyboard, and mobile devices in order to transfer a phone number or key rings, to the caller.
- CALL in to the dial of the lights in the middle of the frequency range, over a telephone line.
- SEARCH, as the name suggests, is a combination of two sinusoidal signals, in order to represent the main features of the signal.

IV. SYSTEM FUNCTION

BLOCK DIAGRAM

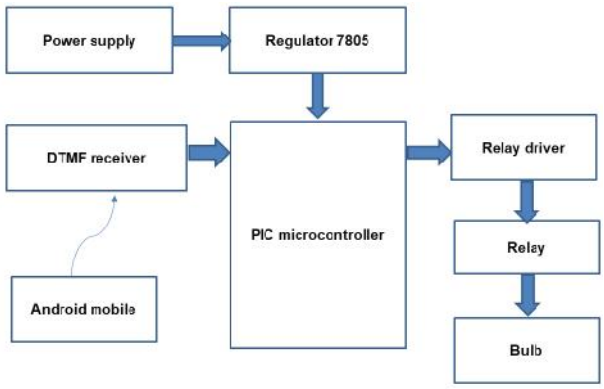

Fig no 1: block diagram for proposed method

CIRCUIT DIAGRAM

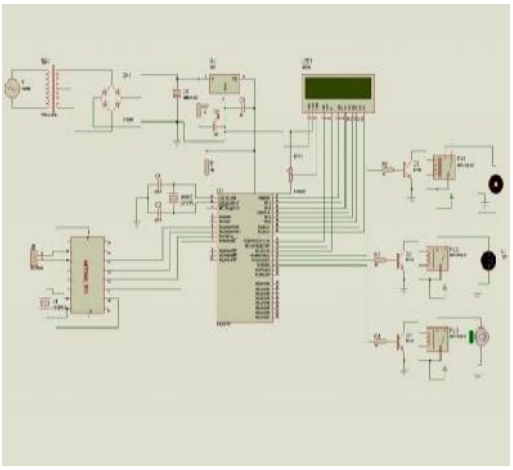

Fig. no 2: Circuit diagram

V. SYSTEM SPECIFICATION

Hardware requirements:

- Microcontroller
- ULN2003
- Bulb
- Holder
- Wire
- IC 7805
- Android phone
- 10uf capacitor
- 1000uf capacitor
- 10K resistor
- 1k resistor
- Power Supply

Software requirements:

- Keil
- Embedded C
- Orcade

VI. HARDWARE REQUIREMENTS

MICROCONTROLLER

The Micro, the PIC architecture is based on a modified Harvard RISC (reduced-Instruction-set Computer) instruction set and the dual-bus architecture, which provides a rapid and flexible design, with a slight shift of just the 6 pin connector is already in the 80's, communication, and 384 bytes to 128 kb of program memory.

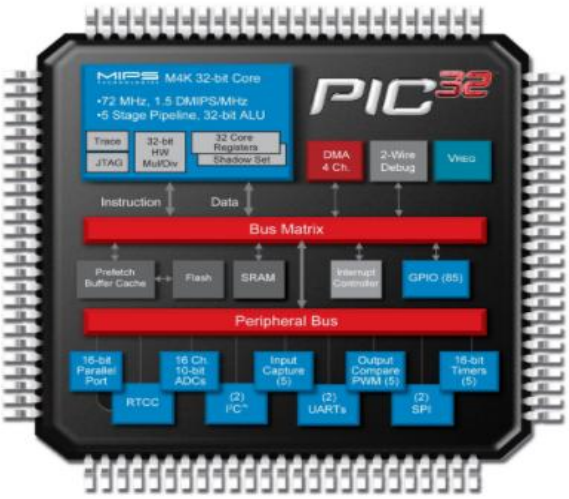

Fig no3 : PIC Microcontroller

RELAY

When a current flow through the coil, the resulting magnetic field attracts an armature that is mechanically connected to the movable contact. The movement of the create, or the bitter tears of contact with the fixed contact. When the current in the coil is switched off, the armature returns to a capacity of approximately one-half of the magnetic force, which allows for a comfortable position. There is usually a spring-loaded, but the weight is still widely used in the motor starter industry. Most of the projects are prepared quickly, years of work experience. Low-voltage, do so from the app, in order to reduce the noise. In the high-voltage or high-current applications, it is used to decrease the arc. If tires are equipped with a constant electrical current, a diode is frequently installed in the coil to dissipate the energy from the collapsing magnetic field of the shortage of energy, which would cause an increase in voltage and may cause damage to the circuit components.

Fig no 4: Relay

LED

The Led is based on the semiconductor diode. When the diode is true, this will be the front of the electrons will recombine with a hole, and releases energy in the form of light..Leds are often small in area, it is equipped with optical components in order to form its radiation pattern and assist in bridging the

Fig no 5: LED

VOLTAGE REGULATOR

This is the most commonly used voltage regulator, which is still used in the interior design. The LM7805 voltage regulator IC is a linear regulator. A proper heat sink as the LM78xx, you can control more than 1A of current. They are also in thermal-overload protection, short circuit protection. This will allow you to connect the output of the rectifier in order to produce a constant source of constant current, rather than to the murmur of excitement. It mainly consists of 3 pins 1. Input voltage 2. Output voltage 3. Ground

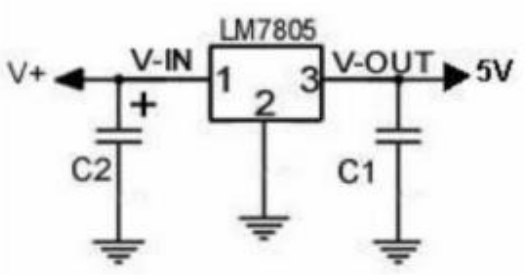

Fig no 6: Voltage Regulator 7805

DTMF DECODER

DTMF keypad frequencies (with sound clips)				
	1209 Hz	1336 Hz	1477 Hz	1633 Hz
697 Hz	1	2	3	A
770 Hz	4	5	6	B
852 Hz	7	8	9	C
941 Hz	*	0	#	D

Fig no7 : DTMF decoder

This circuit is to recognize fiti from a telephone line and decodes the keyboard is pressed the remote to the phone. The horn of africa, who, we hear, we obtain the support is called a two-tone multi-frequency-in a word SEARCH. The name was given because the tone that we hear on the phone is, in fact, two different colors, hence the name dual tone. A CALL to the audio signal that is in a form of one-way communication between the regional dialect and in the country

DTMF SECTION

The first part is the CALL-in section. Using touch tones (DTMF tones can be extended in a two-tone multi-frequency. Each and every key on the keyboard, a mobile phone, with a certain frequency, and in the context of the combinations of the high-frequency (column), and the low-frequency range). When a particular frequency is the key combination is pressed, the input fields will arrive. Connect the module to your cellular phone's audio output (3.5 mm), place a signal of the line, THERE are connectors which is known as the LINE and the GROUND, to the GROUND, set your phone number from a different mobile phone, and press a couple of buttons. These keys are going to be encoded to 4-bit values of the DTMF decoder module is paired with the first ever mobile phone. Right now, the mobile phones have the audio jack configurations. So, you will need to remove the cable, the insulation and the extra left hand, right hand or the sound of the line, the pin-code, and the location of the GND pin.

VII. RESULTS

In the course of our testing, we found that our system was working in a pleasant way. When you make a call and you press the buttons of the phone, DTMF-decoder decodes the signal into a binary form. This is after the processing by the controller in order to set up a specific signal-to-drag the contacts to carry out the contacts are rated as the relay module to control the drivers. The button is pressed by the user, the binary code, which is shown by the DTMF decoder, and the resulting actions that are performed by the control system.

Number	Binary Output of DTMF Decoder	Action
1	0001	Device 1 will be ON
2	0010	Device 1 will be OFF
3	0011	Device 2 will be ON
4	0100	Device 1 will be OFF
5	0101	Device 3 will be ON
6	0110	Device 1 will be OFF
7	0111	Device 4 will be ON
8	1000	Device 1 will be OFF
9	1001	All devices will be ON
0	1100	All devices will be OFF

Fig no: 8 DTMT decoder command

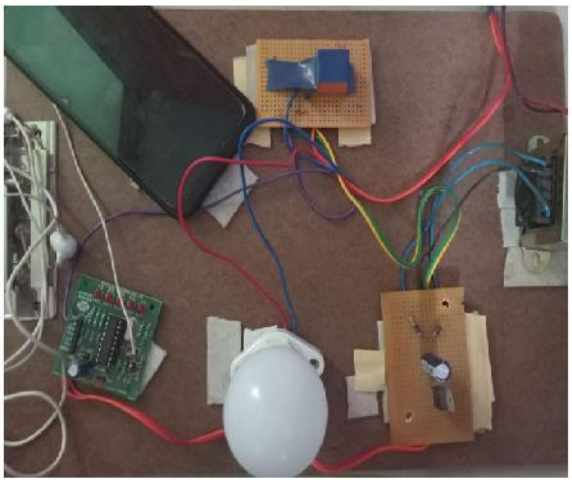

Fig no9: Hardware prototype model

VIII. CONCLUSION

The living of the People of this Detector is an autonomous robot to detect living beings in a destroyed environment. In this system, in order to discover a living, human body; using a mobile phone, a PIC microcontroller, in order to analyse, for example, in the human body. The task is to identify the people in the rescue of the complexity of human agents, but only for a robotic agent. In order to detect the human body, which is an autonomous robot needs to be equipped with a specific set of sensors, which provides the information about the presence of a person and the environment. This system is used in order to detect the presence of other people. This approach requires a relatively

small amount of data to be collected and processed during the emergency. Thus, the cost of processing and transmitting data in real-time is significantly reduced. This system has the potential to achieve high performance in the detection of the living, the destruction of the environments relatively quickly and cost-effectively.

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