



Real Time Voice Automation System for College Department

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Abstract—This project implements a “Department Announcement” which is used for transferring the information to the class rooms that was being instructed by higher authorities. In most of the institutes, announcements are coming under major problem. A Universal announcement through speakers is mostly deployed in most of the institutes, but there are cases when the announcement needs to be done for a particular class room or for particular person. In that case such a universal system will NOT be helpful.

Keywords— Arduino UNO, Amplifier, Triode Vacuum Tube, Information, Transfer.

I. INTRODUCTION

This project implements a “DEPARTMENT ANNOUNCEMENT” which is used for transferring the information to the class rooms that was being instructed by higher authorities. In most of the institutes, announcements are coming under major problem. A universal announcement through speakers is mostly deployed in most of the institutes, but there are cases when the announcement needs to be done for a particular class room or for particular person. In that case such a universal system will NOT be helpful. One resolution of this problem is most of the institutes adopt deploying one universal system and separate system for each room and then place people to handle the entire control system. Though this resolves many issues, but increases the cost of the entire control unit where you have to be dependent on human resources. Automation is one of the most thriving today’s technology through which many of the organisations are cutting costs on Human Resources and utilizing human resources in more innovative and productive works. So here for this issue also we have come up with automating the entire process of announcement where a pre-recorded voice will be played for every announcement in the institutes.

II. CIRCUIT COMPONENTS

- 1) Speakers
- 2) Amplifier Box
- 3) Communication channel
- 4) Mike
- 5) Relay switching and junction box
- 6) Arduino Uno

A. Arduino UNO Over view:

Arduino Uno is a microcontroller board based on the ATmega328P (datasheet). It has 14 digital input/output pins (of which 6 can be used as PWM outputs), 6 analog inputs, a 16 MHz quartz crystal, a USB connection, a power jack, an ICSP header and a reset button. It contains everything needed to support the microcontroller; simply connect it to a computer with a USB cable or power it with a AC-to-DC adapter or battery to get started. You can tinker with your UNO without worrying too much about doing something wrong, worst case scenario you can replace the chip for a few dollars and start over again. "Uno" means one in Italian and is named to mark the upcoming release of Arduino 1.0. The Uno board and version 1.0 of Arduino Software (IDE) were the reference versions of

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Arduino, now evolved to newer releases. The Uno board is the first in a series of USB Arduino boards, and the reference model for the Arduino platform.

III. ARDUINO UNO

The usage of the arduino uno is explained as follows: Arduino can sense the environment by receiving input from a variety of sensors and can affect its surroundings by controlling lights, motors, and other actuators. The microcontroller on the board is programmed using the Arduino programming language (based on Wiring) and the Arduino development environment (based on Processing). Arduino projects can be stand-alone or they can communicate with software running on a computer. Arduino is a cross platform program. You will have to follow different instructions for your personal OS.



Fig: 3.1 Arduino Uno

B. Specification:

- Microcontroller ATmega8
- Operating Voltage 5V
- Input voltage(Recommended) 7-12V
- Input voltage (Limits) 6-20V
- Digital I/O 20
- Analog input 6
- Dc current per I/O Pin 40mA
- Dc current for 3.3V Pin 50mA
- Flash memory 32kb
- SRAM 2kb
- EEPROM 1kb
- Clock speed 16MHz

The board can operate on an external supply of 6 to 20 volts. If supplied with less than 7V, however, the 5V pin may supply less than five volts and the board may be unstable. If using more than 12V, the voltage regulator may overheat and damage the board. The recommended range is 7 to 12 volts.

The power pins are as follows:

- **VIN:** The input voltage to the Arduino board when it's using an external power source (as opposed to 5 volts from the USB connection or other regulated power source). You can supply voltage through this pin, or, if supplying voltage via the power jack, access it through this pin.
- **5V:** The regulated power supply used to power the microcontroller and other components on the board. This can come either from VIN via an on-board regulator, or be supplied by USB or another regulated 5V supply.
- **3V3:**A 3.3 volt supply generated by the on-board regulator. Maximum current draw is 50mA.
- **GND:** Ground pins.

IV. BLOCK DIAGRAM

The block diagram of the department announcement system is as shown below:

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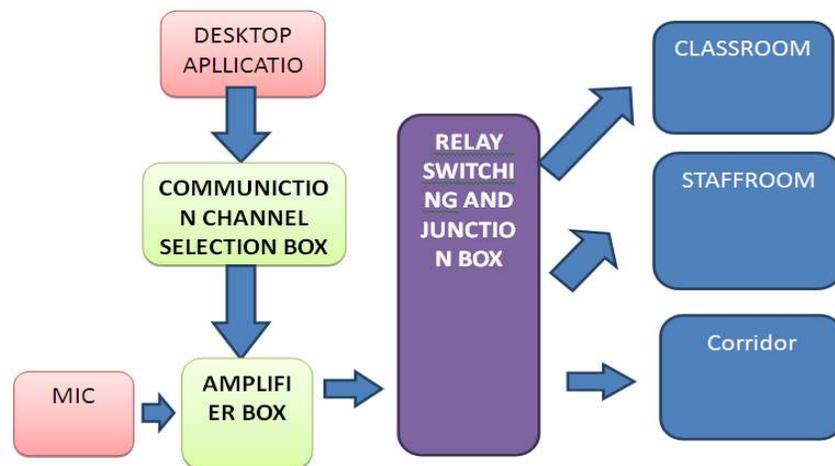


Fig: 4.1 Block Diagram of Department Announcement System

A. Class Rooms

- The signals that are received from the relay switch that is according to the application that we had written the desktop application a particular class room or a staff room or corridor will be activated.
- So that, the relay switch connected to that specified area will be activated and the information will be passed as per the required.

B. Circuit Obtained

The final outcome after making all the interconnections between the components is as follows



Fig: 4.1 Circuit of Department Announcement System

- The signals from the desktop application are passed to the communication channel where we used a ARDUINO UNO.
- The signals from the ARDUINO UNO are received by the amplifier box where the amplifier box contains two inputs a) MIC b) communication channel. This is a serial communication.
- The amplifier strengthen the signals received and are passed to relay box. The relay acts as a switch. The signals that are received from the relay switch that is according to the application that we had written the desktop application a particular class room or a staff room or corridor will be activated.
- So that, the relay switch connected to that specified area will be activated and the information will be passed as per the required.

C. Applications

The system can be used in many sectors like

- ❖ Institutes ,

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- ❖ Universities ,
- ❖ Colleges ,
- ❖ Schools,
- ❖ Industries,
- ❖ Hospitals,
- ❖ Software Company

V. CONCLUSIONS

A universal announcement through speakers are mostly deployed in most of the institutes, but there are cases when the announcement needs to be done for a particular class room or for particular person. In that case such a universal system will NOT be helpful. One resolution of this problem is most of the institutes adopt deploying one universal system and separate system for each room and then place people to handle the entire control system. Though this resolves many issues, but increases the cost of the entire control unit where you have to be dependent on human resources. Automation is one of the most thriving today's technology through which many of the organisations are cutting costs on Human Resources and utilizing human resources in more innovative and productive works. So here for this issue also we have come up with automating the entire process of announcement where a pre-recorded voice will be played for every announcement in the institutes.

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