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State-of-the-art Voice Recognition Automated System for Usual Appliances

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ABSTRACT: *This article presents voice recognition automated interior system for office, industry and home appliances using Arduino UNO. It basically operates on a previously programmed method set on Arduino UNO that makes our life style easier than before.*
Keywords: *Introduction, Methodology, Block Diagram, Circuit Description.*

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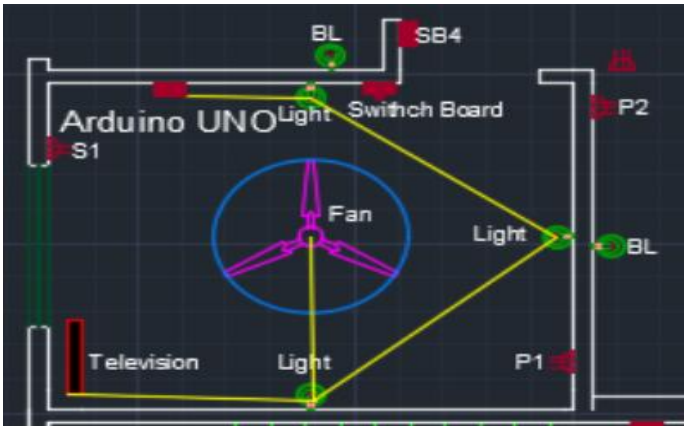
I. INTRODUCTION

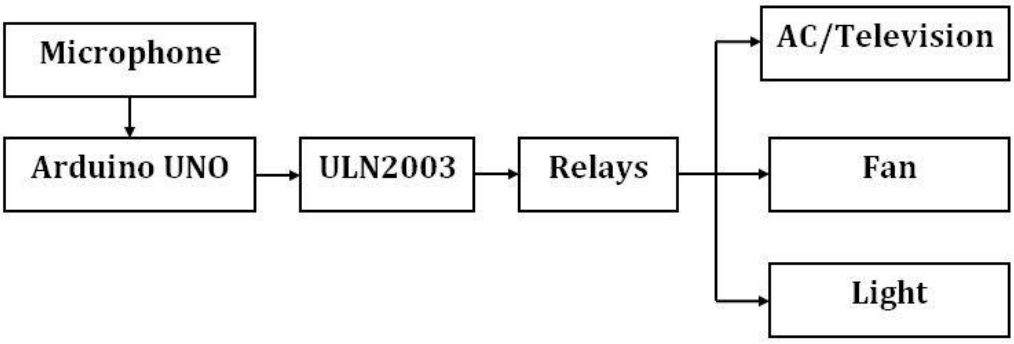
Today the typical appliances are being used with the click of buttons, which is kind of old fashioned. In modern days human are mostly interested on technologies that make the life style simpler than that is today. Here we are trying to come up with the ideas that enhance our relationship with regular electronic apparatus which build up our modern life.

II. METHODOLOGY



- Arduino UNO is used for controlling whole process.
- Voice commands are given as input like “Light On”, “Light Off” and so on for controlling other interior appliances.
- Arduino UNO matches the voice command which was set before in the installed program.
- After receiving command Arduino UNO sends the signal to the relays to switch ON or OFF the appliances.

III. BLOCK DIAGRAM



IV. RECORDING

First we have to record the voice instructions. Each voice instruction has maximum length of 1300ms (1.3 sec), which ensures that most words can be recorded. Once we start recording we can't stop the recording process until we finish all the eight voice instructions of one group. Below is the list of voice command which we set via Microphone, to turn On and Off the Light, Fan and AC/TV:

Sl No	Voice Command	Operation
1.	Light On	Light will on
2.	Light Off	Light will off
3.	Fan On	Fan will on
4.	Fan Off	Fan will off
5.	AC/ TV On	AC/TV will on
6.	AC/TV Off	AC/TV will off
7.	All On	All the appliances connected will be on
8.	All Off	All the appliances connected will be off

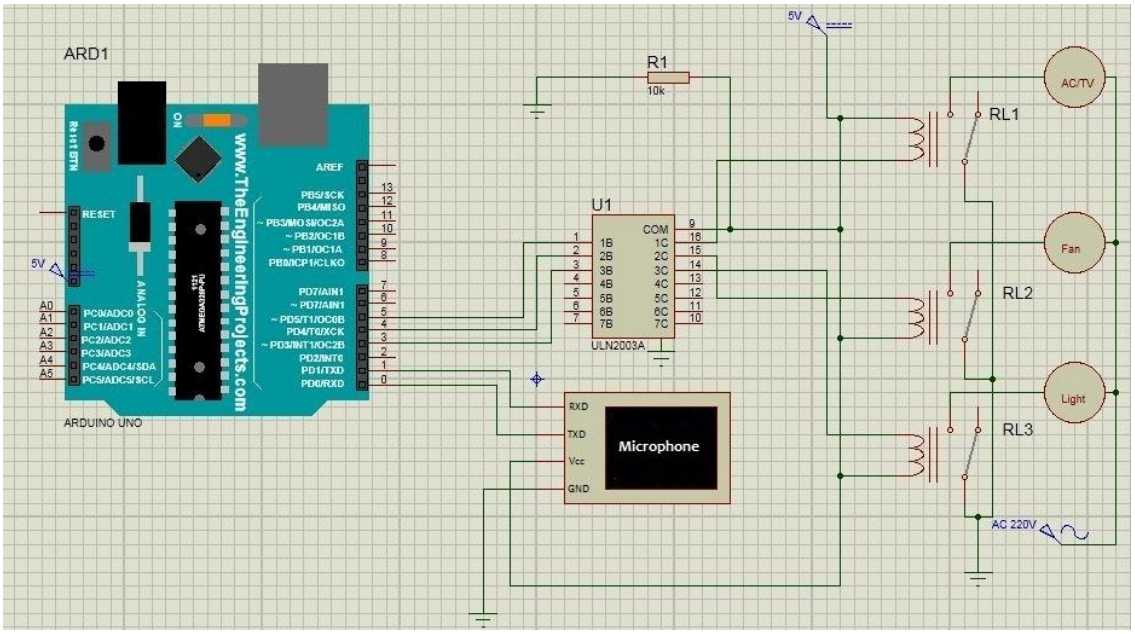
V. COMPONENTS

- Arduino UNO (Microcontroller ATmega328P, Operating voltage: 5 Volt, Recommended input voltage 7-12 Volt, Input voltage limit 6-20 Volt, Digital I/O Pins: 14)
- 5 Volt Relays
- Microphone (KEYES KY-038 Voice Sound Sensor Module)
- ULN2003
- AC Power Supply (220 Volt, 50 Hz)
- Connecting wires
- 10K Resistor
- Appliances (Light, Fan, Air Condition or Television)

VI. WORKING PRINCIPLE

- When any of the 8 commands are given via speaker, it goes directly to the internal circuit.
- Arduino UNO matches the signal and it triggers the desired output.
- Arduino UNO output goes as input to the ULN2003 transistors and its outputs are connected with 3 different relays.
  - Relay 1 for AC/TV
  - Relay 2 for Fan
  - Relay 3 for Light
- 220Volt AC is used to run those appliances that we want to run.

VII. CIRCUIT DESCRIPTION



RX, TX pins of the speaker is directly connected with TX and RX pin of Arduino UNO respectively. 5 Volt SPDT relays are used for controlling light, fan, AC/TV. Relays are connected to Arduino UNO pin number 3, 4 & 5 through relay driver ULN2003. Input pin numbers in ULN2003 are 1B, 2B, 3B and outputs are 1C, 2C and 3C respectively. Pin 9 of ULN2003 is the common terminal connected with 5 Volt source and Vcc of the KY-038. 10K resistor is between the 5 Volt source and ground terminal of Arduino UNO.

VIII. CONCLUSION

In the present World the rapid growth of technological advancement is observed. The global market requests for technologies that are more creative, productive, and reachable to us with reasonable price & ensure the best qualities.

This distinctly advanced interior automated system is proven to be safer than the systematic way that we have been using for decades. Electric shock might happen frequently with our traditional system. To prevent such kind of accident we can use this leading edge visceral system. The use of this approach can ease our life by saving time as well. Furthermore having this smart technology will feel like living in future.

ACKNOWLEDGEMENTS

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