

Basic Electronics Lab

Project Report

TEAM MEMBERS

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|------------------------|------------|
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PROJECT DESCRIPTION

We made a quiz show like KBC with some features. Each contestant will have a buzzer in front of them which needs to be press before any other person in the buzzer round to get the opportunity to answer the question. The question and options will be displayed on the laptop with the help of a GUI. The question is also then narrated. Once the contestant gets the chance to answer he needs to speak out the option which will be recorded and processed by laptop using voice processing software implemented by us. The answer is processed and the score is displayed on the 7 seg display.

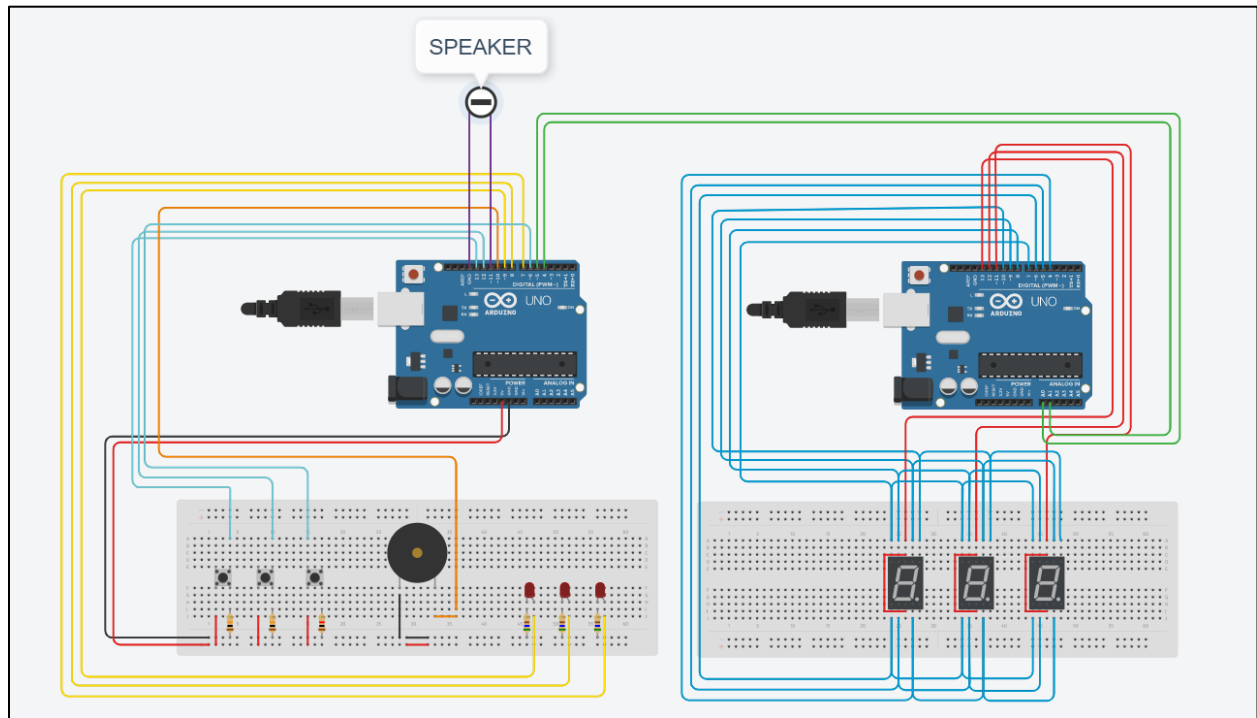
COMPONENTS USED

The components used along with their quantity (mentioned in brackets) are as follows:

1. Arduino Microcontroller (2)
2. Breadboard (2)
3. Jumper wires
4. Push Buttons (3)
5. Piezo Component (1)
6. LED lights (3)
7. Resistors: (560 Ω : 3, 10k Ω : 3)
8. 7 Segment Display (3)
9. External Speaker

CIRCUIT DIAGRAM

Here is a circuit diagram of the implemented circuit:



LINK TO PROJECT VIDEO

Please find the link to the project video here:

<https://photos.app.goo.gl/GAbY9G711LjzcA8u5>

ATTACHED FILES

Please find the following files in the zipped folder along with this report:

1. quiz.py (python script)
2. poll_result.json
3. picture.jpeg
4. mainarduino.ino (Arduino code)
5. scoreboard.ino (Arduino code)

INSTRUCTIONS TO RUN

1. Build the circuit with the help of the circuit diagram shown above.
2. Ensure that picture.jpeg, quiz.py and poll_result.json are in a folder together.
3. Run quiz.py after installing all the necessary modules.

Modules to be installed are:

- PyQt5
- Gspread
- Keyboard, mouse
- Pyserial
- Gtts
- Speech recognition
- Playsound

Other modules used are: time, subprocess, os (all of these are inbuilt into python and need not be installed separately).

4. Verify and upload the Arduino codes to the two boards.

TOTAL BUDGET

We planned on making a very low budget project and succeeded in doing so. The total budget of our project is zero rupees.

UPGRADES

WE HAVE IMPLEMENTED AUDIENCE POLL:

Audience can now vote from their phone through a google form. The code extracts the data from google spreadsheet API (which is connected to the google form) and displays it using implemented UI to the participants and audience.

WE HAVE IMPLEMENTED EXPERT OPTION:

Participants can now get advice/suggestions from their friends or Professors through a live zoom call.

WE HAVE ADDED PEIZZO BUZZER:

Whenever any participant presses the buzzer, we produce a sound from the peizzo buzzer immediately to alert the remaining participants that the buzzer has been pressed.

WE HAVE ADDED LANGUAGE FEATURE FOR NARRATION:

Now, by changing a variable in the python script("language") and modifying the questions according to the language chosen, questions can be narrated in Hindi, Tamil, French, etc. (This feature is provided by the gtts python module).

CONTRIBUTIONS

- **Ch.Chaitanya** : The complete hardware part, Arduino codes, Narration through speakers.
- **J.Prashanth** : Speech Recognition, Audience poll, Expert Option, Narration through laptop.
- **K.V.V.Deepesh** : The UI of the program.
- **Mohd. Rizwan** : Integration of codes, Arduino codes.

CONCLUSION

This project can be used in any country due to its ability to change language, it also enables visually-impaired participants to take part in the quiz as everything is narrated.

This project enabled us to learn a lot of things. Each member contributed to a significant part of the project and helped complete the project.

Thank you for reviewing our project! Hope you liked it!