SE101 - Lab Project

Group 27 Proposal

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For this project, our group will aim to develop a virtual assistant capable of voice/language recognition and carrying out tasks based on keywords. Functionality will include the following:

- Wake upon detecting keyword “Arduino”
- Use LED to indicate status
- Send HTTP requests through attached ethernet shield
    - Upon hearing “Google” keyword, makes a google search for the subsequent question and returns the first search result (one sentence) on the LCD display
- Solve and answer basic math problems/calculations
    - Basic arithmetic
    - Problems include everyday problems like “I got a 80 on my exam, what do I have in the entire course”
        - Arduino will be able to recognise these question types based off keywords and then ask for additional information through the LCD
- Potential enhanced user interface (if we obtain a larger LCD display)

The plan going forward will probably be evolutionary in that we will continuously add functionality to our working model (starting off with the basics: setting up the hardware, converting speech, ethernet connectivity).

The hardware acquired/needed for this project will include:

- Arduino Uno R3
- Compatible Microphone
- LEDs
- Ethernet shield
- LCD display (We currently have a 16x2 display, but we may upgrade down the line)

The main challenges that we will face will certainly include the following:

- Obtaining audio input that is amplified enough to be interpreted
- Recognizing language and assigning values to certain keywords
- Breaking down search results and parsing in a way that concisely and adequately answers most questions
- Breaking down word questions into arithmetic calculations