University of Illinois at Chicago
CS 362: Computer Design, Spring 2018
2 Page Project Write Up

Project Write Up

Project: Smart Clock

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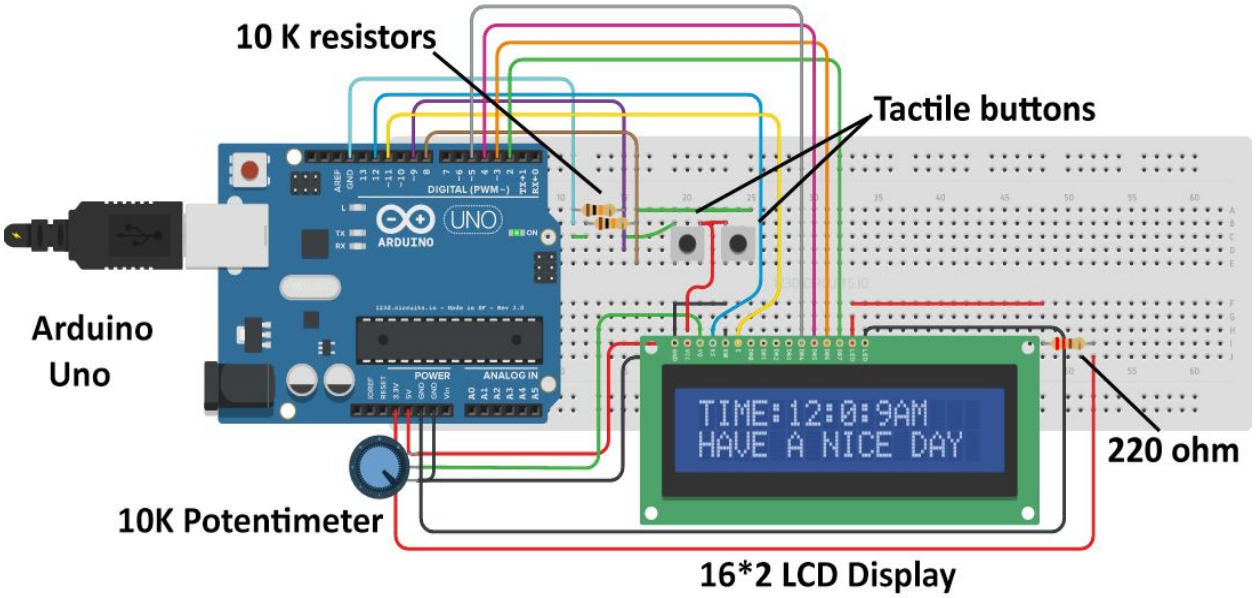
Status: Early development

Concept:
Our concept is an LED clock that displays time using LED's and adjust the level of brightness based on the amount of light in the room. It also has bluetooth connection to connect to any phone and that connection allows the user to play music through speakers that will be connected into the system. Major time zones across the US will also be implemented so the user will be able to choose what time they want to see. In addition, we will allow the user to set an alarm. We will also use the LCD screen to show the temperature for the day along with the temperature that is currently also in the room using a local thermometer. The LCD will also display the current date, and also any alarms that are currently active. Depending on the time of day, the LCD will also output a motivational message/famous quote.

Functionality

1. Use a potentiometer and a button, or the remote to set the master Chicago (Central) time on the master Arduino
2. In addition to the digital time, use LED's to display a makeshift analog clock
3. Display the time for all American time zones on a 16x2 display and the digital piece. Switch time zones by clicking a button or using the remote
    a. Hawaii-Aleutian Time Zone
    b. Alaskan Time Zone
    c. Pacific Time Zone
    d. Mountain Time Zone
    e. Central Time Zone (Chicago)
    f. Eastern Time Zone
4. Allow the user to set an alarm for the currently set time zone that is followed through in all other time zones. Allow the user to use set the alarm using a potentiometer and a button to set the alarm, and a button to get rid of any active alarm. The alarm noise will be made using the buzzer. Use a lit LED to indicate that an alarm is active.

5. Display the weather for a city in each time zone by calling the weather API
    a. http://openweathermap.org/
    b. https://create.arduino.cc/projecthub/user5511362020/get-current-weather-data-from-openweathermap-org-c19b08
    c. http://openweathermap.org/appid
    d. API Key: `d1e3ea31045fa6fe452b716c3ec7d3c3`
6. Display a motivational message/famous quote 3 times a day in the morning, afternoon, and evening based off of the weather and the time.



Materials:

- Arduino
- Photoresistor
- LED's
- LCD Display
- Resistors
- Buttons
- Thermometer
- Breadboard
- Potentiometer
- Cables
- Bluetooth connector
- Wifi connector

Schedule:

- Week 3/12

    - Buy Materials and components
    - Initial planning and design of project
- Week 3/19
    - Construct initial design and mess around with components
        - Connection of arduinos and all components
- Week 4/2
    - Write 4 page write up on project
    - Keep on working in design of project and build based of the design
    - Week 1 of testing
- Week 4/9
    - Perform final modifications on project
    - Week 2 of testing
- Week 4/16
    - Write final report and submit
    - Film video and edit it
- Week 4/23
    - Check in project with T.A

Tutorials:

- https://maker.pro/projects/arduino/arduino-alarm-clock-using-real-time-clock-lcd-screen
- https://create.arduino.cc/projecthub/Annlee_Fores/simple-arduino-digital-clock-without-rtc-7d4303
- http://42bots.com/tutorials/how-to-connect-arduino-uno-to-android-phone-via-bluetooth/