Multi Use Alarm Clock Project using ESP32

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1. Brief description of Alarm Clock usage.

I created an alarm clock using an ESP32 and various electronic components. This alarm clock also has additional features like monitoring temperature and humidity using a sensor. With the click of a button this alarm clock fetches data from a weather API and can be used to check the weather of the downtown Toronto area. Fetching the weather with ease is especially useful for a student like me who is always on the go. In this description I will describe how each component is used. The Potentiometer can be turned to change between screens displayed on the OLed display. Depending on the analog reading of the Potentiometer a different screen will display on the OLed screen. Below is a description of each screen, the number and what they will display.

2. Description of all components used.

Various components were used to obtain different functionalities in this alarm clock. Below is a list of each component, the quantity and description of usage.

- ➔ **[1] ESP32:** This microcontroller was used to control the various components.
- ➔ **[1] DHT Temperature & Humidity:** This sensor is used to measure the temperature and humidity.
- ➔ **[1] Real time clock:** This module is used to display the current time. With a loss of power to the alarm clock this module will keep track of the time elapsed.
- ➔ **[1] Potentiometer:** This component is used as a turning knob to select screens.
- ➔ **[1] Buzzer:** This component is used to create a sound. When an alarm is triggered the buzzer will create a sound.
- ➔ **[2] Push Button:** The buttons are used to set and reset the alarm. The button is also used to test different alarm sounds.
- ➔ **[1] OLed Screen:** This screen is used to display the various data which is read and measured by the different modules.

3. Circuit diagram of Alarm Clock.

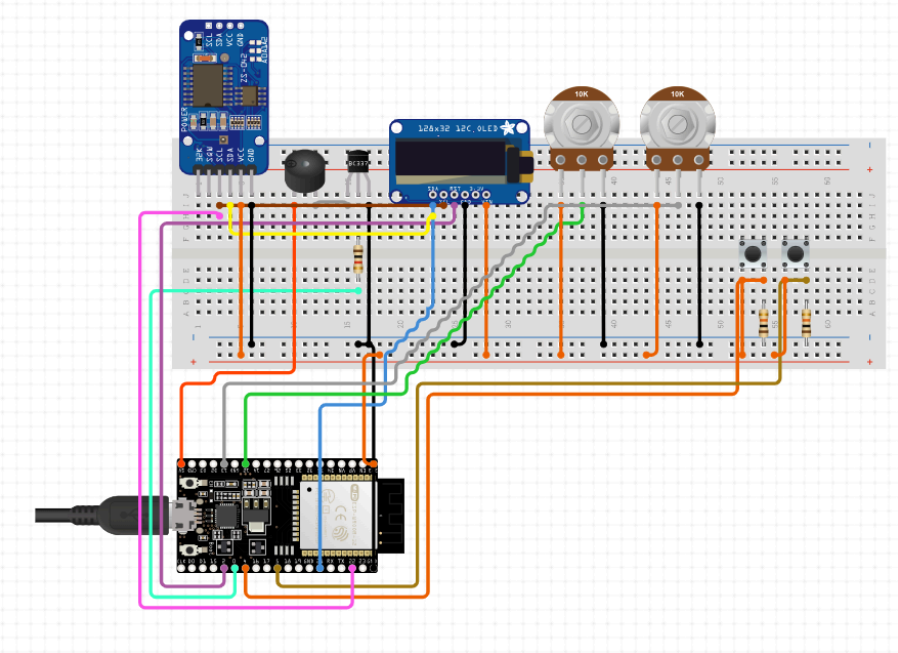

Figure 1. Circuit diagram, some wiring connections may vary

4. Design of Alarm Clock.

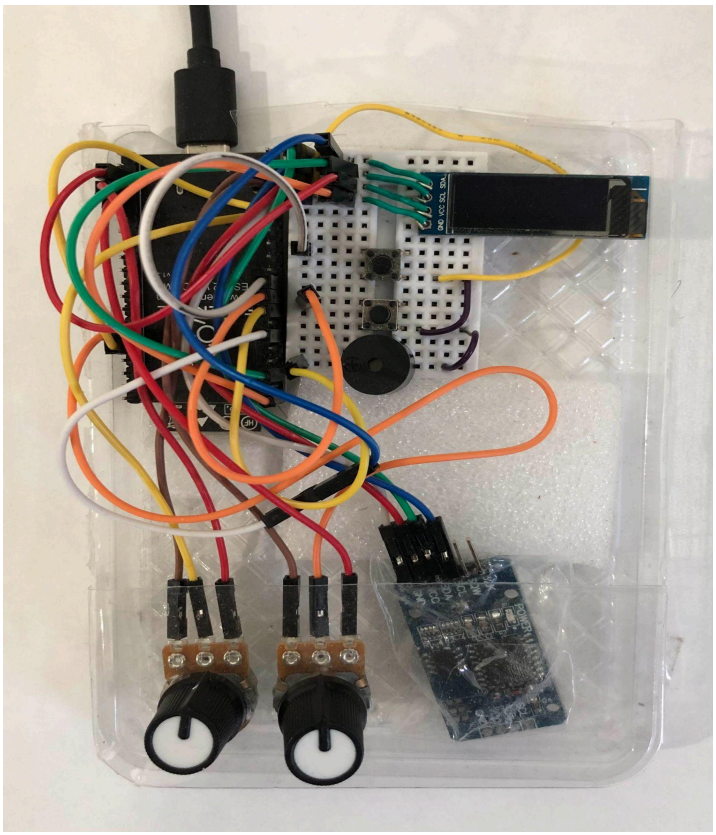

Figure 2. Model of Alarm clock.