ENSC351 Final Project Write-Up Guide

Fall 2023

Professor Morteza Badali

Alarm Clock

Team: 404 Group Not Found

Alex Su, Viraj Patel, Zhaofeng Jiang, Patrina Cheung

System Explanation:

- What Does it do?

  The system accepts user input and displays on the 8x8 matrix, alarm sounds once the set time matches the Google time. If the alarm clock does not detect any input within a few seconds, it will send out an email automatically to the boss for a day off.

- How does it do it?

  1. Wired connection between joystick and BBG.

  2. Wired Connection between LED matrix and BBG.

  3. BBG detects the voltage change of the joystick, distinguishes its direction.

  4. Software in BBG memorizes the user input and shows it on the LED matrix.

  5. BBG access to the internet finds the local time.

  6. Once the two times (user preset & internet) matches, sound will play.

  7. If the user doesn't do anything, BBG sends out an email to the pre-set email.

- Circuit connection

  All in numbers are in P9 (color code is the wires shown in the picture)

  Gray(1) -> GND   Purple(3) -> VCC   Black(17) -> SCL   White(18) ->SDA

  Brown(32) -> Y+   Orange(34) -> X-   Cyan(37) -> X+   Blue(38) -> Y-
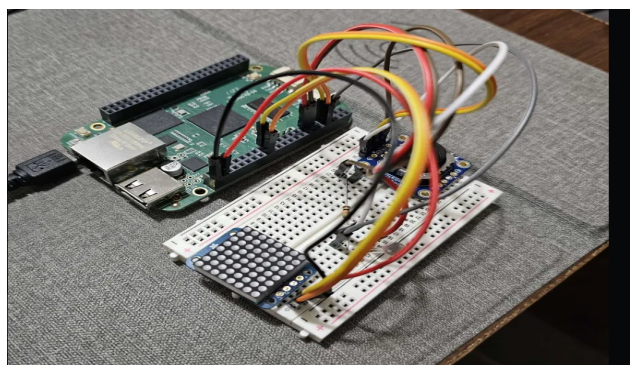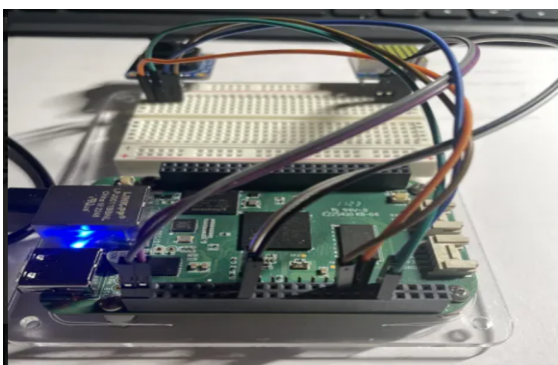
Features Table:

Description	Host/Target	Comp	Code	Author(s)	Notes
Access internet time	T	5	C	Viraj, Zhaofeng	Set Linux Time
LED Matrix Display Time	T	5	C	Zhaofeng	In Hours and Minutes
Accept User Input Time	T	5	C	Viraj	Using Joystick
Alarm Sound	T	5	C	Patrina	Need Audio Adapter and Speaker
Sending Email	T	5	C	Alex, Patrina	Require Additional Library
Detecting Surrounding Brightness Level	T	5	C	Alex, Viraj	By PhotoResist-or Determine Room Light On/Off

Extra Hardware & Software Used:

Hardware	8x8 matrix, joystick, USB Audio Adapter, headphone/speaker, photoresistor
Software	postfix, mailutils, ssmtp, msmtp, msmtp-mta, usbutils, alsa-utils, i2c-tools, libasound2-dev