create a stand up reminder code for Arduino uno with the following instructions: this stand up reminder will use ultrasonic sensor, lcd 16x2, 4-digit seven segment display, buzzer, 2 leds, and 5 buttons. The purpose of the lcd display 16x2 is to display a message that will remind the user to stand up if the count down timer for standing up is running if it is the time to stand up, and the same goes for the count down timer for the sit down if its time to go back to work or sit down. The message that will show here in the lcd are multiple different messages that is encourging to see based on the specific time standing up time or working time. For the 4-digit seven segment display, this will display the count down timer it will display the set time of the user for the stand up time and for the working or sitting time. This 4-digit seven segment display will show the minutes in the first 2 digits on the left and seconds for the last 2 digits on the left. The ultrasonic sensor will also be used to sense a hand close to it within 10cm range in order for the user to stop or turn off the buzzer for the stand up and sitting time if the their timers are all done, so basically this ultrasonic sensor's purpose is to turn off the buzzer if the user wants to proceed to standing up or sitting. A buzzer will be used to sound an alarm if the timer in each of the timers in for stand up and sitting are done to alarm the user if its time to stand up or time to sit down. 2 LEDs will also be used as an indication if the time to stand up or sitdown is done, this will ready the user to stand up if the timer for sitting down is done, and ready the user to sitting if the timer for standing up is done. The red led will blink 5 times if the sitting time is done, and the green led will blink 5 times if the standing time is done. for the five buttons, all these buttons are all connected to a single analog output which is A0. The purpose of button1 is to increment the minutes of the sitting timer with a max minutes of 30 mins, button2 is to decrement the minutes for the sitting timer, for button3 is to increment the minutes of the stand up timer with max of 30 mins, for the button4 is to decrement the minutes of the stand up timer, and button5 is to switch from setting up the sitting time to setting the stand up settings. if the user wants to set the sitting timer the user must press the button5, and vice versa if the user wants to set the stand up timer.

The segment pins of the 4-digit seven segment display is connected to the arduino uno for a = A3, b=A2, c=A1, d=12, e=8, f= 9, g=10, and its digit pins in connected to for D1=4, D2=5, D3=6, D4=7. The ultrasonic sensor echo pin is connected to 3 in arduino, and its trigger pin is connected to 2 in arduino. The red led is connected to 11 in arduino, and the green is connected to 13 of the arduino. The buzzer is connected to 11 pin in arduino. The SCL of the lcd is connected to A5, and the SDA of the lcd is connected to A4.

All the 5 buttons are connected to a single anaglog output which is the A0, the identification on which button is pressed is in the code below:

void loop() {

int buttonValue = analogRead(switch1);

int state1 = digitalRead(switch1);

Serial.print("Analog value: ");

Serial.println(buttonValue);

if(buttonValue>=1018 && buttonValue<=1025){

digitalWrite(led1, HIGH);

Serial.println("Button 1 Pressed");

dis.setCursor(1, 0);

dis.print("B1");

delay(1000);

ledClear();

}if(buttonValue>=920 && buttonValue<=935){

digitalWrite(led1, HIGH);

Serial.println("Button 2 Pressed");

dis.setCursor(1, 0);

dis.print("B2");

delay(1000);

ledClear();

}if(buttonValue>=998 && buttonValue<=1005){

digitalWrite(led1, HIGH);

Serial.println("Button 3 Pressed");

dis.setCursor(1, 0);

dis.print("B3");

delay(1000);

ledClear();

}if(buttonValue>=1008 && buttonValue<=1015){

digitalWrite(led1, HIGH);

Serial.println("Button 4 Pressed");

dis.setCursor(1, 0);

dis.print("B4");

delay(1000);

ledClear();

}if(buttonValue>=965 && buttonValue<=975){

digitalWrite(led1, HIGH);

Serial.println("Button 5 Pressed");

dis.setCursor(1, 0);

dis.print("B5");

delay(1000);

ledClear();

} else{

digitalWrite(led1, LOW);

}