Abstract:

Normally, we can find out the living species by sensing their appropriate body temperature. Likewise we can find out the time of human death by measuring the suitable body temperature using a machine .algormortis machine is used to calculate the time of persons death. Usually, after death the temperature of the body varies from 1.4-2degree Fahrenheit for every 12 hours after the person passes. And after 12 hours the body temperature varies from 0.7 degree Fahrenheit per hour. By using this machine, we can easily sense the temperature of the human and we can measure the time of death portably without risk.

Aim:

To suspect the time of persons death by measuring the temperature of human using algormortis machine.

Components Required:

LM35 temperature sensor, arduino UNO R3 board, 2x16 LCD display and a 10k potentiometer.

About Algormortis:

Algormortis ( latin: algor-coldness;mortis-of death), the second state of death, is the change in body temperature post mortem, until the ambient temperature is matched. The cooling of the body after death is a complex process, which does not occur at the same rate throughout the body. The body cools more rapidly on the surface and more slowly in the interior.

LM35 sensor:

LM stands for linear monolithic referring to the analog components integrated into a single piece of silicon. The LM35 series are position integrated circuit temperature devices with an output voltage linearity-proportional to the centigrade temperature. The LM35 is rated to operate over a -55 c to 150 c temperature range . It consists of amplifier at the right which converts absolute temperature (measured in Kelvin ) into either Fahrenheit or Celsius.

Arduino :

Arduino is an open source computer hardware and software board. The boards are equipped with sets of digital and analog input/output pin that may be interfaced to various expansions boards and other circuits. The board feature serial communications interface, including universal serial bus. Mainly arduino is used because it can sense the environment by receiving input from variety of sensors and can affect its surroundings. The microcontroller on the board is programmed using the arduino programming language.

LCD:

It is an electrically modulated optical device that uses the night-modulating properties of liquid crystals. Liquid crystals do not emit height directly, instead using a backlight or reflector to produce images in colour or monochrome. It consist of 10 pins. It consist of two registers namely, command and data.

Potentiometer:

It is a three-terminal resistor with a sliding or rotating contact that forms an adjustable voltage divider. It is an instrument for measuring voltage by comparison of a unknown voltage with a known reference voltage.

ARDUINO CODING:

#include<LiquidCrystal.h>

LiquidCrystal lcd (13,12,11,10,9,8);

//float centi()

//{

// int data;

// float a;

// data=analogRead(A0);

// a=(500.0\*data)/1023;

// return(a);

//}

//float faha(float b)

//{

// float d;

// d=(b\*1.8)+32;

// return(d);

//}

void setup() {

// put your setup code here, to run once:

pinMode(A0,INPUT);

//lcd.begin(16,2);

Serial.begin(9600);

}

void loop() {

// put your main code here, to run repeatedly:

int data;

float a,x,y,p,f;

data=analogRead(A0);

a=(500.0\*data)/1023;

f=(a\*1.8)+32;

// float C=centi();

// float F=faha(C);

x=98-f;

if(x>0)

{

y=12\*1.4;

if(x-y==0)

{

lcd.print("time=12hours");

Serial.println("12");

delay(10000);

}

else if(x-y>0)

{

p=(x-y)/0.7;

p=p+12;

lcd.print("Time");

lcd.print(p);

lcd.print("hours");

Serial.println(p);

delay(10000);

}

else

{

p=f/1.4;

lcd.print("time");

lcd.print(p);

lcd.print("hours");

Serial.println(p);

delay(10000);

}

}

// else

// {

// }

Serial.println(a);

//

print(f);

}

Working principle:

After the death of a person ,the body temperature of the human varies from 1.4-2 degree Fahrenheit at a rate of 12 hrs. After 12 hours the temperature varies from 0.4 degree Fahrenheit per hour. By using the temperature sensor we can sense the temperature of the humans. As the lm35 sensor is analog, the output temperature is also in an analog form. analog input is not allowed inside the arduino , so we want to convert the analog input to digital. for that purpose we are using the arduino. Arduino has an inbuilt ADC. Then the temperature can be displayed in 2x16 LCD display.

CONCLUSION:

The algormortis machine has many applications. It is an innovative and admirable project that meets the demands of medical industry. It is used in hospitals and in various medicals fields. It is a confidential project that will definitely help us to find the exact results for better verification.