```
//Talking Thermometer - Gymnasio Vamou 2019

#include <dht.h>

#include <DHT.h>

#include <SPI.h>

#include <TMRpcm.h>

#include <SD.h>

#include "NewPing.h"

#include <Wire.h>

#include <LiquidCrystal_I2C.h>

LiquidCrystal_I2C lcd(0x27,20 ,4); // set the LCD address to 0x3F for a 16 chars and 2 line display

const int chipselect = 4;

#define SD_ChipSelectPin 4

#define DHT11_PIN 7

#define ECHO_PIN 5 // Arduino pin tied to echo pin on the ultrasonic sensor.

#define TRIGGER_PIN 6 // Arduino pin tied to trigger pin on the ultrasonic sensor.

#define MAX_DISTANCE 500 // Maximum distance we want to ping for (in centimeters). Maximum sensor distance is rated at 400-500cm.

NewPing sonar(TRIGGER_PIN, ECHO_PIN, MAX_DISTANCE); // NewPing setup of pins and maximum distance.

dht DHT;

TMRpcm tmrpcm;


void setup()

{

  lcd.init(); // initialize the lcd

  lcd.backlight();

  lcd.setCursor(0,0);

  lcd.print("Talking  Thermometer");

  lcd.setCursor(0,1);

  lcd.print("   Gymnasio Vamou");
```

```
  tmrpcm.speakerPin = 9;
  pinMode(9,OUTPUT);
  Serial.begin(9600);
  Serial.println("Talking Thermometer - Gymnasio Vamou");
  if(!SD.begin(SD_ChipSelectPin))
  {Serial.println("SD fail");
  return;}
}

void loop() {
  unsigned int uS = sonar.ping(); // Send ping, get ping time in microseconds (uS).
  unsigned int cm = sonar.convert_cm(uS); // Convert into centimeters
  int chk = DHT.read11(DHT11_PIN);
  Serial.print("  Distance: ");
  Serial.print(cm);
  Serial.println(" cm ");
  lcd.setCursor(0,0);
  lcd.print("Talking  Thermometer");
  lcd.setCursor(0,1);
  lcd.print("   Gymnasio Vamou");
  lcd.setCursor(0,2);
  lcd.print("Temperature: ");
  lcd.print(DHT.temperature);
  lcd.print((char)223);
  lcd.print("C");
  lcd.setCursor(3,3);
  lcd.print("Humidity: ");
  lcd.print(DHT.humidity);
  lcd.print(" %");
  delay(600);
```

```
if (cm < 40) {
 tmrpcm.speakerPin = (HIGH);
 if ((DHT.temperature) == 15) {
 tmrpcm.setVolume(5);
 tmrpcm.play("15.wav");
 lcd.setCursor(0,1);
 lcd.print("  Hello It's Cool     ");
 }
 if ((DHT.temperature) == 16) {
 tmrpcm.setVolume(5);
 tmrpcm.play("16.wav");
 lcd.setCursor(0,1);
 lcd.print("  Hello It's Cool     ");
 }
 if ((DHT.temperature) == 17) {
   tmrpcm.setVolume(5);
 tmrpcm.play("17.wav");
 lcd.setCursor(0,1);
 lcd.print("  Hello It's Cool     ");
 }
 if ((DHT.temperature) == 18) {
   tmrpcm.setVolume(5);
 tmrpcm.play("18.wav");
 lcd.setCursor(0,1);
 lcd.print("  Hello It's Cool    ");
 }
 if ((DHT.temperature) == 19) {
   tmrpcm.setVolume(5);
 tmrpcm.play("19.wav");
```

```
lcd.setCursor(0,1);
lcd.print("  Hello It's Nice    ");
}
if ((DHT.temperature) == 20) {
  tmrpcm.setVolume(5);
tmrpcm.play("20.wav");
lcd.setCursor(0,1);
lcd.print("  Hello It's Nice    ");
}
if ((DHT.temperature) == 21) {
  tmrpcm.setVolume(5);
tmrpcm.play("21.wav");
lcd.setCursor(0,1);
lcd.print("  Hello It's Nice    ");
}
if ((DHT.temperature) == 22) {
  tmrpcm.setVolume(5);
tmrpcm.play("22.wav");
lcd.setCursor(0,1);
lcd.print("  Hello It's Nice    ");
}
if ((DHT.temperature) == 23) {
  tmrpcm.setVolume(5);
tmrpcm.play("23.wav");
lcd.setCursor(0,1);
lcd.print("  Hello It's Nice    ");
}
if ((DHT.temperature) == 24) {
  tmrpcm.setVolume(5);
tmrpcm.play("24.wav");
```

```
 lcd.setCursor(0,1);
 lcd.print("  Hello It's Nice    ");
 }
 if ((DHT.temperature) == 25) {
   tmrpcm.setVolume(5);
 tmrpcm.play("25.wav");
 lcd.setCursor(0,1);
 lcd.print(" Hello It's Warm! ");
}
 if ((DHT.temperature) == 26) {
   tmrpcm.setVolume(5);
 tmrpcm.play("26.wav");
 lcd.setCursor(0,1);
 lcd.print(" Hello It's Warm! ");
 }
 if ((DHT.temperature) == 27) {
   tmrpcm.setVolume(5);
 tmrpcm.play("27.wav");
 lcd.setCursor(0,1);
 lcd.print(" Hello It's Warm! ");
 }
 if ((DHT.temperature) == 28) {
   tmrpcm.setVolume(5);
 tmrpcm.play("28.wav");
 lcd.setCursor(0,1);
 lcd.print(" Hello It's Warm! ");
}
 if ((DHT.temperature) == 29) {
   tmrpcm.setVolume(5);
 tmrpcm.play("29.wav");
```

```
  lcd.setCursor(0,1);
  lcd.print(" Hello It's Warm! ");
  }
  if ((DHT.temperature) == 30) {
    tmrpcm.setVolume(5);
  tmrpcm.play("30.wav");
  lcd.setCursor(0,1);
  lcd.print("  Hello Very Hot!     ");
  }
  if ((DHT.temperature) == 31) {
    tmrpcm.setVolume(5);
tmrpcm.play("31.wav");
lcd.setCursor(0,1);
  lcd.print("  Hello Very Hot!     ");
  }
  if ((DHT.temperature) == 32) {
    tmrpcm.setVolume(5);
tmrpcm.play("32.wav");
lcd.setCursor(0,1);
  lcd.print("  Hello Very Hot!     ");
  }
  if ((DHT.temperature) == 33) {
    tmrpcm.setVolume(5);
tmrpcm.play("33.wav");
lcd.setCursor(0,1);
  lcd.print("  Hello Very Hot!     ");
  }
  if ((DHT.temperature) == 34) {
    tmrpcm.setVolume(5);
tmrpcm.play("34.wav");
```

```
lcd.setCursor(0,1);
  lcd.print("  Hello Very Hot!     ");
  }
  if ((DHT.temperature) == 35) {
    tmrpcm.setVolume(5);
tmrpcm.play("35.wav");
lcd.setCursor(0,1);
  lcd.print("  Hello Very Hot!     ");
  }
  if ((DHT.temperature) == 36) {
    tmrpcm.setVolume(5);
tmrpcm.play("36.wav");
lcd.setCursor(0,1);
  lcd.print("  Hello Very Hot!     ");
  }
  delay(3000);
  tmrpcm.stopPlayback();
 }
 if (cm > 40) {
  tmrpcm.speakerPin = (LOW);}
}
```