#include <Time.h>

#include <SPI.h>

#include <SD.h>

File HeartRate;

int ledPin = 7; // LED connected to digital pin 7 on the data shield

int sensorPin = A0; // select the input pin for the potentiometer (this is the purple wire)

float sensorValue = 0; // variable to store the value coming from the sensor

int count = 0;

unsigned long starttime = 0;

int heartrate = 0;

boolean counted = false;

void setup()

{

 // declare the ledPin as an OUTPUT:

 pinMode(sensorPin, INPUT);

 Serial.begin(9600);

 pinMode(ledPin, OUTPUT);

 // Open serial communications and wait for port to open:

 Serial.begin(9600);

 while (!Serial)

 {

 ; // wait for serial port to connect. Needed for Leonardo only

 }

 Serial.print("Initializing SD card...");

 pinMode(10, OUTPUT);

 if (!SD.begin(10))

 {

 Serial.println("initialization failed!");

 return;

 }

 Serial.println("initialization done.");

}

void loop()

 {

 // read the value from the sensor:

 starttime = millis();

 while(millis()<starttime+5000)

 {

 sensorValue = analogRead(sensorPin);

 if (sensorValue >536 && counted == false)

 {

 count++;

 counted = true;

 digitalWrite(ledPin, HIGH); // this turns the LED on when the machine senses a beat

 }

 else if (sensorValue < 520)

 {

 counted = false;

 digitalWrite(ledPin, LOW); // this turns the LED off

 }

 if(millis() == starttime+5000)

 {

 heartrate=count\*12;

 Serial.print("This is just serial ---- ");

 Serial.print("Your heart rate is ");

 Serial.print(heartrate);

 Serial.println(" beats/minute");

 HeartRate = SD.open("test2.txt", FILE\_WRITE);

 if (HeartRate)

 {

 Serial.println("i am printing heart rate to the card now...");

 HeartRate.print("Your heart rate is ");

 HeartRate.print(heartrate);

 HeartRate.println(" beats/minute");

 HeartRate.close();

 }

 HeartRate = SD.open("test2.txt");

 if (HeartRate)

 {

 Serial.println("THIS IS THE FILE test.txt:");

 // read from the file until there's nothing else in it:

 while (HeartRate.available())

 {

 Serial.write(HeartRate.read());

 }

 // close the file

 HeartRate.close();

 }

 }

}

 heartrate=0;

 count =0;

}