#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;

}