Appendix – 1

```
#include <Wire.h>
#include <MPU6050.h>
MPU6050 mpu;
//////////////////
#include <U8g2lib.h>
U8G2_SSD1306_128X64_NONAME_F_HW_I2C u8g2(U8G2_R0, /* reset=*/ U8X8_PIN_NONE);
#include "MAX30100_PulseOximeter.h"
PulseOximeter pox;

void onBeatDetected()
{
  Serial.println("Beat!");
  u8g2.setCursor(75, 42);
  u8g2.print("Beat!");

}
////////////////
void setup()
{
 Serial.begin(115200);
 //////////////////
 u8g2.begin();
 //////////////////
 Serial.println("Initialize MPU6050");

 while(!mpu.begin(MPU6050_SCALE_2000DPS, MPU6050_RANGE_2G))
 {
  Serial.println("Could not find a valid MPU6050 sensor, check wiring!");
  delay(500);
 }
if (!pox.begin()) {
    Serial.println("FAILED");
    for(;;);
  } else {
    Serial.println("SUCCESS");
  }

  // pox.setIRLedCurrent(MAX30100_LED_CURR_7_6MA);


  pox. setOnBeatDetectedCallback(onBeatDetected);
}

void loop()
{
  // Read normalized values
  Vector normAccel = mpu.readNormalizeAccel();

  // Calculate Pitch & Roll
  int pitch = -(atan2(normAccel.XAxis, sqrt(normAccel.YAxis*normAccel.YAxis + normAccel.ZAxis*normAccel.ZAxis))
*180.0)/molarity_PI;
  int roll = (atan2(normAccel.YAxis, normAccel.ZAxis)*180.0)/M_PI;
```