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Hands Free Computer Mouse Interface

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This code is designed for the TI MSP430G2553

Based off Example:

MPU6050 Triple Axis Gyroscope & Accelerometer. Pitch & Roll Accelerometer Example.

Read more: http://www.jarzebski.pl/arduino/czujniki-i-sensory/3-osiowy-zyroskop-i-akcelerometr-mpu6050.html

GIT: https://github.com/jarzebski/Arduino-MPU6050

Web: http://www.jarzebski.pl

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#include <Wire.h>

#include <MPU6050.h>

#define LED\_L P1\_1 //Left LED Red

#define LED\_R P1\_2 //Right LED Green

#define LED\_F P1\_3 //Front LED Blue

#define LED\_B P1\_4 //Back Led Yellow

MPU6050 mpu;

void setup()

{

Serial.begin(9600);

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);

}

pinMode(LED\_L, OUTPUT);

pinMode(LED\_R, OUTPUT);

pinMode(LED\_F, OUTPUT);

pinMode(LED\_B, OUTPUT);

}

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)/M\_PI;

int roll = (atan2(normAccel.YAxis, normAccel.ZAxis)\*180.0)/M\_PI;

// Set trigger sensistivity with this variable

int trig = 10;

// Pitch Led activation

if(pitch >=-trig && pitch <=trig){ // Deadzone L+R off

digitalWrite(LED\_L, LOW);

digitalWrite(LED\_R, LOW);

}else if(pitch < -trig) { //Tilt Left

digitalWrite(LED\_L, HIGH);

digitalWrite(LED\_R, LOW);

}else{ //Tilt Right

digitalWrite(LED\_L, LOW);

digitalWrite(LED\_R, HIGH);

}

// Roll Led activation

if(roll >=-trig && roll <=trig){ // Deadzone F+B off

digitalWrite(LED\_F, LOW);

digitalWrite(LED\_B, LOW);

}else if(roll < -trig) { //Tilt Front - cursor up

digitalWrite(LED\_F, HIGH);

digitalWrite(LED\_B, LOW);

}else{ //Tilt Back - cursor down

digitalWrite(LED\_F, LOW);

digitalWrite(LED\_B, HIGH);

}

// Output

Serial.print(" Pitch = ");

Serial.print(pitch);

Serial.print(" Roll = ");

Serial.print(roll);

Serial.println();

delay(100);

}