```
/***** #INCLUDES *****/
/* Include every header that is needed for this file to be interpreted
 * correctly.  Ideally, there should be no reliance in the order in which
 * header files are included.  Do not rely on a header file to be included
 * by other header files.
 */
#include <stdio.h>
#include <stdlib.h>
#include "system.h"
#include "accAPI.h"
#include <unistd.h>
#include <stdint.h>
#include "altera_avalon_i2c.h"

volatile ALT_AVALON_I2C_DEV_t *i2c;
volatile ALT_AVALON_I2C_MASTER_CONFIG_t config;
volatile ALT_AVALON_I2C_STATUS_CODE status;
volatile uint8_t txbuffer[2];

/**
 * acc_init
 * Purpose: initializes the i2c interface for the accelerometer
 * args:
 *      nothing
 * returns:
 *      nothing
 */
void acc_init(){

    i2c = alt_avalon_i2c_open(ACCEL_I2C_NAME);
    if(i2c == NULL){
        printf("Unable to find %s \n", ACCEL_I2C_NAME);
    }
    alt_avalon_i2c_master_target_set(i2c, 0x53);

    txbuffer[0] = 0x31;
    txbuffer[1] = 0x0B;

    status = alt_avalon_i2c_master_tx(i2c, txbuffer, 2, ALT_AVALON_I2C_NO_INTERRUPTS);
    if(status != ALT_AVALON_I2C_SUCCESS){
        printf("Transmit data format error");
    }

    alt_avalon_i2c_master_config_get(i2c, &config);
    alt_avalon_i2c_master_config_speed_set(i2c, &config, 400000);
    alt_avalon_i2c_master_config_set(i2c, &config);

    txbuffer[0] = 0x2D;
    txbuffer[1] = 0x08;

    status = alt_avalon_i2c_master_tx(i2c, txbuffer, 2, ALT_AVALON_I2C_NO_INTERRUPTS);
    if(status != ALT_AVALON_I2C_SUCCESS){
        printf("Transmit power format error");
    }

    txbuffer[0] = 0x32;

}

/**
 * recieve_position
 * Purpose: Retrieves the current position values of the accelerometer
 * args:
 *      rxbuffer - the receiving buffer, it sotres the x,y,z values
 * returns:
 *      nothing
 */
void recieve_position(uint16_t* rxbuffer){
    status = alt_avalon_i2c_master_tx_rx(i2c,
```

```
70              txbuffer, 1,
71              (uint8_t*) rxbuffer, 6,
72              ALT_AVALON_I2C_NO_INTERRUPTS);
73      if(status != ALT_AVALON_I2C_SUCCESS){
74              printf("Error receiving data");
75      }
76  }
77
```