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LAB8 Report

The purpose of this lab was to be able to learn how to use the LCD screen. It teaches us the functions and methods needed to be able to write text and to control moving objects on the screen as well as showing us how to change the behavior of the screen as well.

**Flowchart:**

The following flowchart is a simple representation of what we intend our code to follow. We did not make a flowchart for the first part of the lab as it simply required using a function. This flowchart only shows the bouncing ball logic. The ball starts at some y position with no y velocity and an arbitrary x velocity. The ball then accelerates downwards until it hits the ground. The velocity is then flipped from negative to positive and slightly reduced. The ball then keeps bouncing away forever (or at least until it moves off screen).

C:\Users\Jose Capestany\Downloads\LAB8.png

**Conclusion:**

This program was moderately difficult. Luckily, the given functions were tremendously helpful in coding this lab. The logic was also straightforward as well. The difficulties came in implementing them. It took a while to figure out how each function behaved. When we did figure it out it became easy to implement our ideas and successfully learn how to utilize the LCD screen of the MSP430.

**APPENDIX: CODE**

#include "msp430.h"

#include "hal\_MSP-EXP430F5438.h"

main(void){

WDTCTL = WDTPW + WDTHOLD;  // STOP WATCHDOG TIMER

halLcdInit(); //INITIALIZING

halLcdInit();

halLcdClearScreen(); // CLEARING LCD SCREEN

halLcdPrint("Jose",OVERWRITE\_TEXT);    // PRINT THE NAME

halLcdBackLightInit(); // THE NAME WILL BE IN BLACK

\_\_delay\_cycles(1000000); // TIME NEEDED

halLcdClearScreen();

halLcdPrint("Sayaf",OVERWRITE\_TEXT); // PRINT THE SECOND NAME AFTER THE FIRST NAME

\_\_delay\_cycles(1000000); // TIME NEEDED FOR WAITING

halLcdClearScreen(); // CLEARING LCD SCREEN

halLcdBackLightInit(); // THE NAME WILL BE IN BLACK

WDTCTL = WDTPW + WDTHOLD; // Stop watchdog timer

halLcdInit(); // INITIALIZING

halLcdClearScreen(); // CLEAING LCD SCREEN

int xpos=5; // SET VALUE FOR X POSITION

int ypos=5; // SET VALUE FOR Y POSITION

int xvel=5; // SET VALUE FOR X VELOCITY

int yvel=5; // SET VALUE FOR Y VELOCITY

while(1) {

halLcdCircle(xpos,ypos,7,12);// COORDINATES OF X AND Y POSITIONS

if(ypos >= 80) yvel = yvel \*-0.8; // THE POSTION OF BALL ON Y-AXIS, AND THE FACTOR OF Y VELOCITY

yvel +=2; // INCREASE THE Y VELOCITY EACH TIME BY 2

xpos = xpos+xvel; // SET VALUE OF X POSITION IN TERMS OF X POSITION AND X VELOCITY

ypos = ypos+yvel; // SET VALUE OF Y POSITION IN TERMS OF Y POSITION AND Y VELOCITY

halLcdClearScreen(); // CLEARING THE SCREEN

if(ypos <= 80) yvel = yvel \*0.8;// THE POSTION OF BALL ON Y-AXIS, AND THE FACTOR OF Y VELOCITY

yvel +=2; // INCREASE THE Y VELOCITY EACH TIME BY 2

xpos = xpos+xvel; // SET VALUE OF X POSITION IN TERMS OF X POSITION AND X VELOCITY

ypos = ypos+yvel; // SET VALUE OF Y POSITION IN TERMS OF Y POSITION AND Y VELOCITY

halLcdClearScreen(); // CLEARING THE SCREEN

}

}