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//************************************* main.c ************************************
// Project: Keil Labs and Project
// File: main.c
// Class: ENEL 351 Lab Works
// Programmer: Amandip Padda
// SID: 200455829
// Description: The project is based on the STM32F103RB that is being used in ENEL 351 Labs.
// It will also be used in the Project related to input and output of various sensors.

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// ********************************** Header Files *********************************
#include "stm32f10x.h"
#include "header.h"
#include <string.h>
#include <stdio.h>
#include <stdlib.h>
#include <math.h>

// ********************** Interrupt Handler to handle Line Tracking Sensors **********************
void EXTI9_5_IRQHandler(void)
{
	if (EXTI -> PR & (1 << 5)) // Line 5 Checker
	{
		completeStop();
```

```
                leftReverse();
                rightForward();
   EXTI -> PR |= (1 << 5); // Line 5 Clear
  }
  if (EXTI -> PR & (1 << 6)) // Line 6 Checker
        {
                completeStop();
                rightReverse();
                leftForward();
   EXTI -> PR |= (1 << 6); // Line 6 Clear
        }
}

// ************************************** Main Starts ********************************
int main(void)
{
        clockInit(); // Clock Set Up
  portEnable(); // Emable Port Clocks
  pinConfigure(); // Pin Config
        lcdSetup(); // LCD Setup
  char message[20];
        powerScreen();
  while(1)
  {
                float photoResistor = (readPhotoResistor()*(100.00/4095.00));
                float pressure = (readPressure()*(500.00/4095.00));
                brightnessControl(photoResistor);
   float distance = calculateDistance();
                completeGoForward();
```

```
if (distance > 0)
{
	if (distance < 5)
	{
		completeStop();
		ledTest();
		sprintf(message, " Weight : %.2f", pressure);
		stringToLCD(message);
		delay(1200);
		clear();
	}
	else
	{
		if ((GPIOB->IDR & GPIO_IDR_IDR5) > 0)
		{

			stringToLCD("   Travelling   ");
			stringToLCD(message);
			delay(500);
			clear();
		}
		else if ((GPIOB->IDR & GPIO_IDR_IDR6) > 0)
		{

			stringToLCD("   Travelling   ");
			stringToLCD(message);
			delay(500);
			clear();
		}
```

```
                                else
                                {
                                        completeStop();
                                        completeGoForward();
                                        stopLedTest();
                                        stringToLCD("   Travelling   ");
                                        stringToLCD(message);
                                        delay(500);
                                        clear();
                                }
                        }
                }
        }
}
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```