

main.c

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//main.c

//This file initializes our motor direction, adjusts the angle

//for the servo motor, adjusts our LED colors, and adjusts

//the speed of the motor

#include <project.h>

//Extern calculated motor clockwise value for Motor 2

int motorValue = 226;

int main()

{

//Local Variables

int CapSenseValue = 0;

int CapSenseValueLED = 0;

int PrevCapSenseValueLED = 0;

int CapSenseValueServo = 0;

int PrevCapSenseValueServo = 0;

int CapSenseValueMotor = 0;

int PrevCapSenseValueMotor = 0;

CyGlobalIntEnable; /\* Enable global interrupts. \*/

//Start and initialize CapSense

CapSense\_Start();

CapSense\_InitializeAllBaselines();

CapSense\_EnableWidget(CapSense\_LINEARSLIDER\_\_LS);

//Start SPI

SPIM\_Start();

//Start PWMs

TCPWM\_LEDs\_Start();

TCPWM\_Motor\_Start();

TCPWM\_Servo\_Start();

//Start Interruupt

PioneerPress\_Interrupt\_Start();

//Write Leds

LED\_A\_Write(1);

LED\_B\_Write(1);

//Use SPI to write direction to motor

SPIM\_WriteTxData(motorValue);

CyDelay(100);

TRANSFER\_Write(0);

TRANSFER\_Write(1);

ENABLE\_Write(0);

for(;;)

{

//Disable NonCapsense Interrupts

PioneerPress\_Interrupt\_Disable();

//Initialize CapSense Further

CapSense\_UpdateEnabledBaselines();

CapSense\_ScanEnabledWidgets();

while(CapSense\_IsBusy());

//Get Slider Value

CapSenseValue = CapSense\_GetCentroidPos(CapSense\_LINEARSLIDER\_\_LS);

//Adjust LED PWM compare value to adjust LED colors

CapSenseValueLED = CapSenseValue/10;

if(CapSenseValueLED != PrevCapSenseValueLED && CapSenseValue != 65535)

{

TCPWM\_LEDs\_WriteCompare(CapSenseValueLED);

PrevCapSenseValueLED = CapSenseValueLED;

}

//Adjust Motor PWM compare value to adjust speed

CapSenseValueMotor = CapSenseValue/10;

if(CapSenseValueMotor != PrevCapSenseValueMotor && CapSenseValue != 65535)

{

TCPWM\_Motor\_WriteCompare(CapSenseValueMotor);

PrevCapSenseValueMotor = CapSenseValueMotor;

}

//Adjust Servo PWM compare value to adjust angle

CapSenseValueServo = 100 \* ((((CapSenseValue) \* (1.9))/ 100) + .5);

if(CapSenseValueServo < 65)

{

CapSenseValueServo = 60;

}

if(CapSenseValueServo > 225 )

{

CapSenseValueServo = 225;

}

if(CapSenseValueServo != PrevCapSenseValueServo && CapSenseValue != 65535)

{

TCPWM\_Servo\_WriteCompare(CapSenseValueServo);

PrevCapSenseValueServo = CapSenseValueServo;

}

//Enable NonCapsense Interrupts

PioneerPress\_Interrupt\_Enable();

}

}

/\* [] END OF FILE \*/

PioneerPress\_Interrupt.C

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//PioneerPress\_Interrupt.c

//This file adjusts motor direction

#if !defined(PioneerPress\_Interrupt\_\_REMOVED) /\* Check for removal by optimization \*/

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\* Place your includes, defines and code here

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/\* `#START PioneerPress\_Interrupt\_intc` \*/

#include <project.h>

extern int motorValue;

/\* `#END` \*/

extern cyisraddress CyRamVectors[CYINT\_IRQ\_BASE + CY\_NUM\_INTERRUPTS];

/\* Declared in startup, used to set unused interrupts to. \*/

CY\_ISR\_PROTO(IntDefaultHandler);

CY\_ISR(PioneerPress\_Interrupt\_Interrupt)

{

#ifdef PioneerPress\_Interrupt\_INTERRUPT\_INTERRUPT\_CALLBACK

PioneerPress\_Interrupt\_Interrupt\_InterruptCallback();

#endif /\* PioneerPress\_Interrupt\_INTERRUPT\_INTERRUPT\_CALLBACK \*/

/\* Place your Interrupt code here. \*/

/\* `#START PioneerPress\_Interrupt\_Interrupt` \*/

//Change motor direction from clockwise to counter clockwise or vice versa

if(motorValue == 240)

{

motorValue = 226;

}

else

{

motorValue = 240;

}

SPIM\_WriteTxData(motorValue);

CyDelay(100);

TRANSFER\_Write(0);

TRANSFER\_Write(1);

ENABLE\_Write(0);

/\* `#END` \*/

}