Complier directives

    #include<c8051_SDCC.h>

    #include <stdio.h>

    #include<stdlib.h>

    #include<i2c.h>

Function Prototypes

    Void Port_Init(void);

    Void Timer_Init(void);

    Void Interrupt_Init(void);

    Void Timer0_ISR(void) __interrupt 1;

    void PCA_Init (void)

    void read_driver(void)

    void readcompass(void)

    void readLED (void)

    void drive_motar(void)

    void steering servo(void)

    void LEDblink(void)

global variables

    Sbit LED0 SLDSW

    unsigned int MOTOR_PW = 0;

    unsigned int steering-servo_PW=0;

    unsigned int LED brightness_PW=0;

    unsigned int distance=0;

    int heading=0;

    unsigned int roombrightness=0;

    unsigned int desired_speed=0;

    unsigned int desired_heading=0;

    unsigned int desired_brightness=0;

    unsigned int current_speed=0;

unsigned int current_heading=0;

unsigned int current_brightness=0;

main function

Declare local variables

(none)

Initialize function

Sys_Init();

putchar(' '); //the quotes in this line may not format correctly

Port_Init();

XBR0_Init();

 PCA_Init();

Print some message to indicate start

While(1){

Ranger task()

Compass task()

LED task()

}

End main function

Ranger task()

If switch is on

read ranger distance

If (distance <= 10cm)

Full speed ahead

Else If (>=80cm)

Full reverse speed

Else

Speed linearly changes depends on the reading distance

Neutral at about 45cm

Else

Motor stop

End ranger task

Compass task

If switch is on

Read compass heading

Set a desired heading

Calculate error

Use a value k to calculate the pw then new pw wil turn the wheel

Else

Wheels are parallel to the car

End compass task

LED task

If switch is on

Read light sensors value

If (<40)

Brightest

Else If(>215)

Dimmest

Else

Change the brightness linearly

Else if switch is off

Turn off the led

End LED task

Other function

Initialize i2c and XBR