

University of Florida
Department of Electrical Engineering
EEL 5934 Intelligent Machines Design Lab

A (Bad) Programming Example For Obstacle Avoidance

```
/* Rudimentary obstacle avoidance
using 3 front mounted IR sensors.
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int LEFT;
int MIDDLE;
int RIGHT;

int THRESHOLD=90;

int LEFT_MOTOR=0;
int RIGHT_MOTOR=1;

void go_right()
{
    motor(LEFT_MOTOR,NORM_SPEED);
    motor(RIGHT_MOTOR,STOP);
}

void go_left()
{
    motor(RIGHT_MOTOR,NORM_SPEED);
    motor(LEFT_MOTOR,STOP);
}

void go_forward()
{
    motor(RIGHT_MOTOR,NORM_SPEED);
    motor(LEFT_MOTOR,NORM_SPEED);
}

void go_back()
{
    motor(RIGHT_MOTOR,-1*NORM_SPEED);
    motor(LEFT_MOTOR,-1*NORM_SPEED/2);
}

void read_sensors()
{
    while(1){
        LEFT=analog(0);
        MIDDLE=analog(4);
        RIGHT=analog(1);
        defer();
    }
}

void avoid_obstacles()
{
    while (1){
        if (LEFT > THRESHOLD && RIGHT <=
THRESHOLD)
            go_right();
        else if (RIGHT > THRESHOLD && LEFT
<= THRESHOLD)
            go_left();
        else if ((LEFT > THRESHOLD && RIGHT
> THRESHOLD) || MIDDLE > THRESHOLD)
            go_back();
        else go_forward();
        defer();
    }
}

void main()
{
    start_process(read_sensors());
    start_process(avoid_obstacles());
}
```