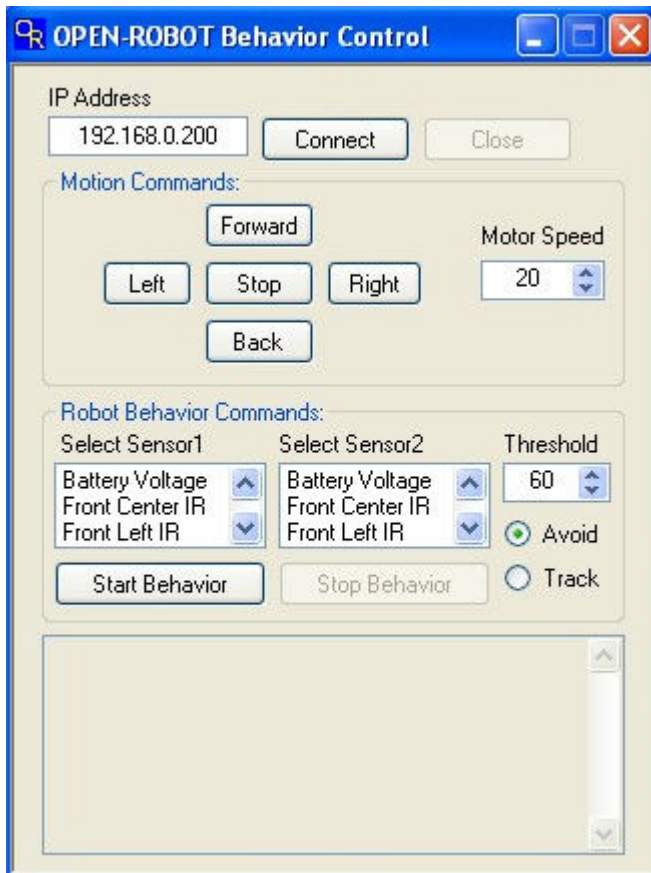


OPEN-ROBOT Behavior Program

Introduction

The OPEN-ROBOT Behavior program allows you to create simple behaviors for OPEN-ROBOT, i.e. obstacle avoidance, obstacle tracking, light avoidance and light tracking. The source-code can be modified or used as a learning tool so that you can eventually create your own OPEN-ROBOT program.



Figure#1. OPEN-ROBOT Behavior Control.

Program Usage

First enter your robot's IP Address and then click connect. Be sure to have your robot powered up first. You can use the motion commands to move the robot around. These commands use open-loop velocity motor control. You can set the motor speed by using the Motor Speed number control.

Once you are connected you can configure your robot's behavior by using the (2)-drop down list boxes: Select Sensor1 and Select Sensor2. The Threshold numeric control sets up a value that is used in the behavior control logic. Finally you configure the behavior to

be Avoid or Track. Sensor1 is mapped to the left motor and sensor2 is mapped to the right motor. For example, if we set motor speed = 20, Sensor1 = Left Front IR, Sensor2 = Right Front IR, Threshold = 60, and select Avoid then the following logic is applied during runtime.

```
If (LeftFrontIR > 60 & RightFrontIR > 60 )
{
    If (LeftFrontIR > RightFrontIR)
    {
        LeftMotorSpeed = 20;
        RightMotorSpeed = -20;
    }
    If (RightFrontIR > LeftFrontIR)
    {
        LeftMotorSpeed = -20;
        RightMotorSpeed = 20;
    }
}
```

If the left front IR exceeds the Threshold value of 60 and is greater than the front right IR, then the robot will spin to the right to avoid the object. Otherwise, if the right front IR exceeds 60 and is greater than the left front IR, then the robot spins left to avoid the object. If we selected Track instead of Avoid, then the robot would always turn towards the blocked IR sensor. You can do the same thing with the two light sensors and create a robot that either follows a flashlight or turns away from it.

Please send all questions to abe@abotics.com