```
pub = rospublisher('/raw_vel');
msg = rosmessage(pub);
sub_bump = rossubscriber('/bump');

start_pos = [2 0];
check_1 = [0.1 1];
check_2 = [0 3];
bob_pos = [1 6];
speed = 0.2;

turn_angle = get_turn_angle(0, start_pos, check_1)
```

```
theta = -62.2415
turn_angle = -62.2415
```

```
[time, Vl, Vr] = turn(turn_angle);
```

```
time = 0.5975
```

```
msg.Data = [Vr, Vl];
tic
send(pub, msg);
pause(time);
forward_dist = get_dist(check_1, start_pos);
```

```
distance = 2.1471
```

```
msg.Data = [speed, speed];
send(pub, msg);
pause(forward_dist / (speed * 3.28))

turn_2 = get_turn_angle(turn_angle, check_1, check_2)
```

```
theta = 59.3791
turn_2 = 59.3791
```

```
[time, Vl, Vr] = turn(turn_2);
```

```
time = 0.5700
```

```
msg.Data = [Vr, Vl];
send(pub, msg);
pause(time);
forward_dist = get_dist(check_1, check_2);
```

```
distance = 2.0025
```

```
msg.Data = [speed, speed];
send(pub, msg);
pause(forward_dist / (speed * 3.28))

turn_3 = get_turn_angle(-6, check_2, bob_pos)
```

```
theta = 24.4349
turn_3 = 24.4349
```

```
[time, Vl, Vr] = turn(turn_3);
```

```
time = 0.2346
```

```
msg.Data = [Vr, Vl];
send(pub, msg);
pause(time);
forward_dist = get_dist(bob_pos, check_2);
```

```
distance = 3.1623
```

```
msg.Data = [speed, speed];
send(pub, msg);
%pause(forward_dist / (speed * 3.28))


while 1
    %Sense for bump:
    bumpMessage = receive(sub_bump);
    if any(bumpMessage.Data)
        msg.Data = [0.0, 0.0];
        send(pub, msg);
        break;
    end
end
toc
```

```
Elapsed time is 11.759203 seconds.
```

```

```

```
function [time, Vr, Vl] = turn(theta)
    speed = 0.2;
    time = (abs(theta)*.22*3.1415926535)/(360*speed)
    if theta < 0
        Vr = speed;
        Vl = -speed;
    else
        Vr = -speed;
        Vl = speed;
    end
end

function theta = get_turn_angle(orientation, point1, point2)
    theta = -orientation + atand((point2(1) - point1(1)) / (point2(2) - point1(2)))
end

function distance = get_dist(point1, point2)
    distance = sqrt((point1(1) - point2(1))^2 + (point1(2) - point2(2))^2)
end
```