lab1 Report

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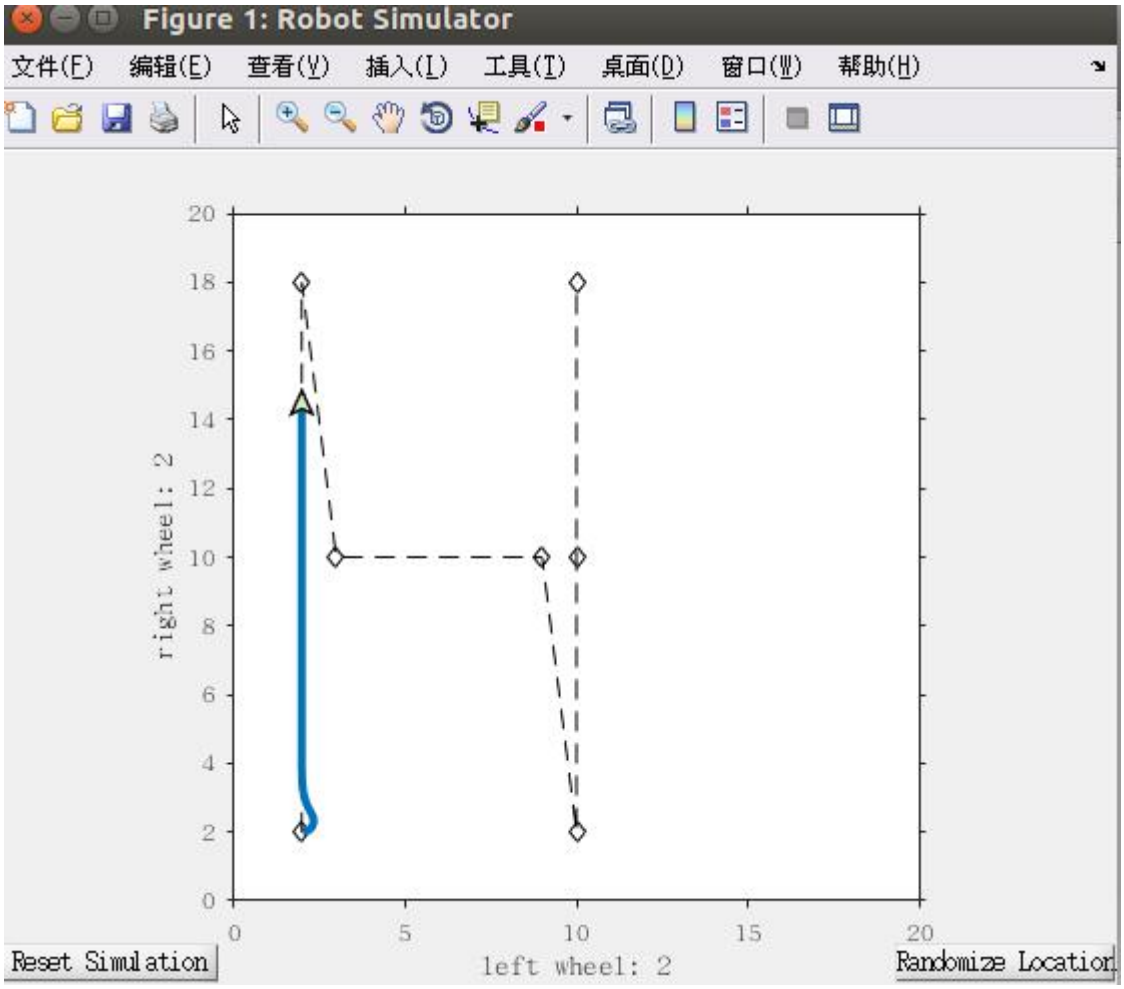
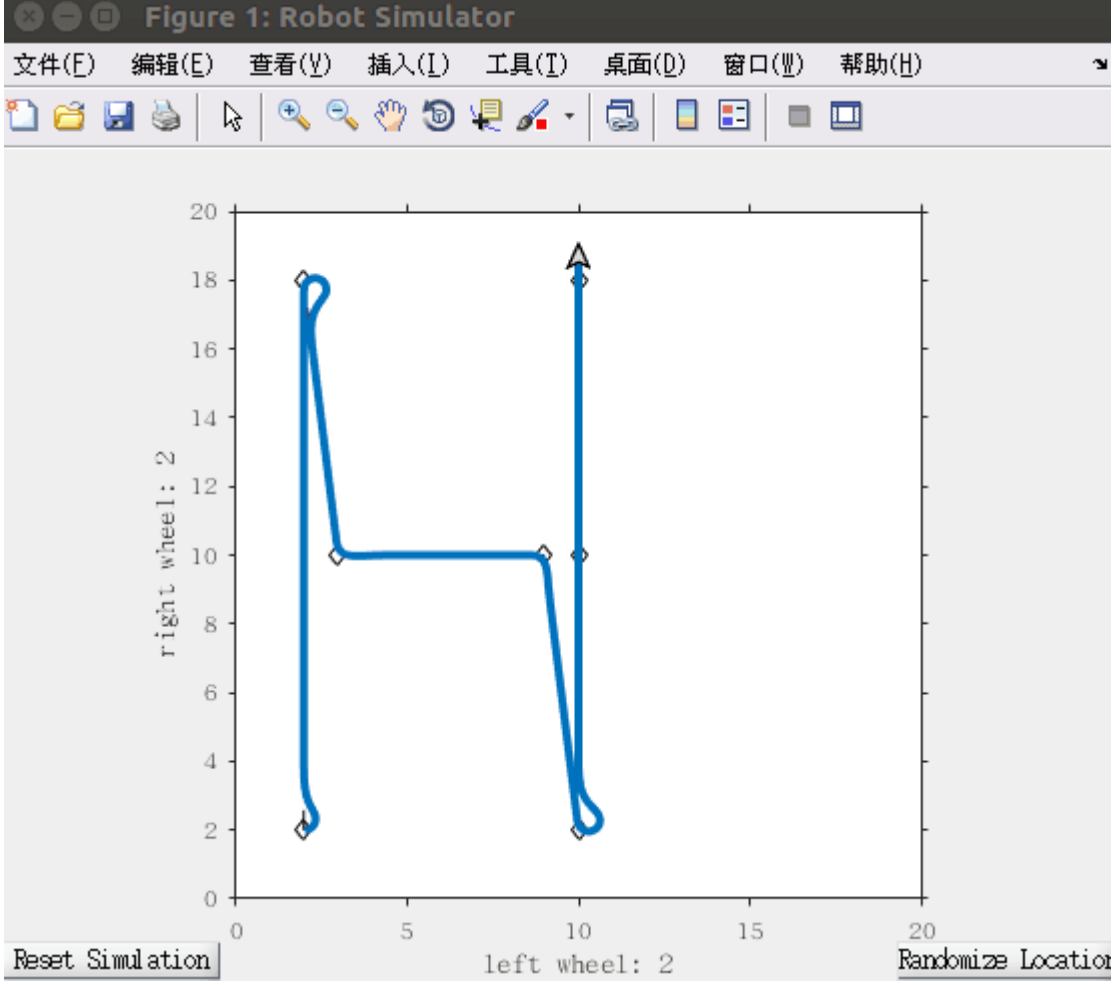
Code:

```
path = [2 2;
        2 18;
        3 10;
        9 10;
        10 2;
        10 10;
        10 18;]

robotCurrentLocation = path(1,:);
robotGoal = path(end,:);

initialOrientation = 0;
robotCurrenPose = [robotCurrentLocation initialOrientation];

robotRadius = 0.5;
robot = ExampleHelperRobotSimulator('emptyMap',2);
robot.enableLaser(false);
robot.setRobotSize(robotRadius);
robot.showTrajectory(true);
robot.setRobotPose(robotCurrenPose);

plot(path(:,1),path(:,2),'k--d');
xlim([0 20]);
ylim([0 20]);

controller = robotics.PurePursuit;
controller.Waypoints = path;
controller.DesiredLinearVelocity = 0.6;
controller.MaxAngularVelocity = 2;
controller.LookaheadDistance = 0.5;

goalRadius = 0.1;
distanceToGoal = norm(robotCurrentLocation - robotGoal);

controlRate = robotics.Rate(10);
while(distanceToGoal > goalRadius)
    [v omega] = controller(robot.getRobotPose);
%     text(16,2,num2str(v));
%     text(16,1,num2str(omega));‘
    vl = v-omega/4;
    vr = v+ omega/4;
    xlabel("left wheel: "+vl);
    ylabel("right wheel: " + vr);
```

```
        "left wheel: "+vl
        "right wheel: " + vr
        drive(robot, v, omega);
        robotCurrentPose = robot.getRobotPose;
        distanceToGoal = norm(robotCurrentPose(1:2)-robotGoal);
        waitfor(controlRate);
    end

    % delete(robot);
```

Result:





The speed of left and right wheel is shown in the x axis and y axis.
I use formula V_left = v - w*l/2 and V_right = v+ w*l/2 to transfer.