

# P.A.R.T.S

Portland Area Robotics Society

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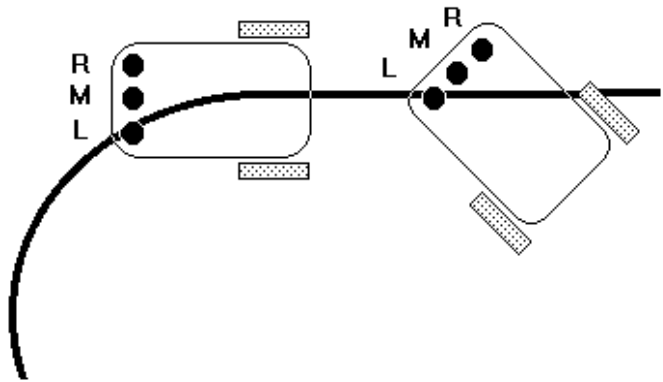
"I never met a robot I didn't like." - I'm not sure who said that, but I like his attitude.

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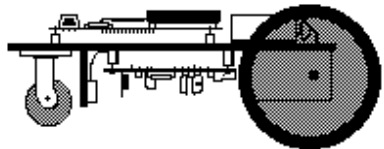
In this Issue, I'm going to talk about the line following algorithm I used to have Zippy follow a black line on white paper. The algorithm is very simple, but may have some drawbacks. Also I will share some hot ( ROBOT Builders ) locations in the Portland area.

Zippy the line following robot uses a simple algorithm to track a line. The robot has three eyes, all in a straight line behind the front drive wheel. The eyes will be referred to as R, M, L, in the diagram for right, middle, and left. The two motors on Zippy are used to drive and steer the robot, and only one motor runs during a turn. For example to turn left, the left wheel would stop and the right wheel would turn forward.



\* Use the code Algorithm to figure out what Zippy will do next.

To first figure out how Zippy would run, I cut out a cardboard square, punched three holes in it, then pushed it around on a black line. (No computer simulation needed.)



## Code Algorithm to follow line ( used in Zippy ):

1. Move forward.
2. Check (R) right and (L) left eye. If no line was seen goto 1.
3. If right eye on line, turn left until middle eye is on a line. Goto 1. ( centered )
4. If left eye on line, turn right until middle eye is on a line. Goto 1.

This code will tend to keep the robot on track, and doesn't care where the line is as long as it's between the left and right eyes. This algorithm works well unless the line has an intersection in it. The robot may attempt to turn at an intersection.

**Portland Ore.** has a number of good spots for the robot enthusiast. You can find all kinds of electronic surplus, hardware, plastic, motors, and really 'wacky' stuff. This map will give a general idea of locations and addresses.

1. Cascade Surplus Electronics  
8221 N Denver Ave. **285-0832**
2. Powell's Technical Book Store  
33 NW Park **228-3906**
3. Wacky Willy's  
417 SE 11th Ave. **234-6864**
4. Radar Electronic Company Inc.  
704 SE Washington **232-3404**
5. TAP Plastics Inc.  
3818 SE Powell Bv. **230-0770**

### OTHERS:

Portland Radio Supply  
234 SE Grand **233-4904**

Norvac Electronics  
7940 SW Nimbus Ave. Beaverton **644-1025**

Spend a day and enjoy these stores, you may find that special something.

