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The complete software for this robot is included in as the **C14_WallFollower** project included with the TExaS Chapter 14 installation.

Help

VIDEO 14.7. AUTONOMOUS ROBOT DEMONSTRATION



DR. RAMESH YERRABALLI: Hi.

I'm Professor Yerraballi, and this is the University of Texas at Austin.

DR. JONATHAN VALVANO: And I'm Professor Valvano.

And today we're going to demonstrate this robot we've been building.

DR. RAMESH YERRABALLI: OK, so John, let's talk about some of the components on that robot.

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BILL OF MATERIALS

- Two DC geared motors, HN-GH12-1640Y, GH35GMB-R, Jameco Part no. 164786
 - 0.23in or 6 mm shaft (get hubs to match)
- Metal or wood for base,
- Hardware for mounting
 - 2 motor mounts 1-1/4 in. PVC Conduit Clamps Model # E977GC-CTN Store SKU # 178931 www.homedepot.com
 - some way to attach the LaunchPad (I used an Erector set, but you could use rubber bands)
- Two wheels and two hubs to match the diameter of the motor shaft
 - Shepherd 1-1/4 in. Caster Rubber Wheel Model # 9487 www.homedepot.com
 - 2 6mm hubs Dave's Hubs - 6mm Hub Set of Two Part# 0-DWH6MM www.robotmarketplace.com
 - 2 3-Inch Diameter Treaded Lite Flite Wheels 2pk Part# 0-DAV5730 www.robotmarketplace.com
- Two GP2Y0A21YK IR range sensors
 - Sparkfun, www.sparkfun.com SEN-00242 or http://www.parallax.com/product/28995
- Battery
 - 8.4V NiMH or 11.1V Lilon. I bought the 8.4V NiMH batteries you see in the video as surplus a long time ago. I teach a real-time OS class where students write an OS then deploy it on a robot. I have a big pile of these 8.4V batteries, so I used a couple for the two robots in

this class. NiMH are easier to charge, but I suggest Li-Ion because they store more energy/weight. For my medical instruments, I use a lot of Tenergy 31003 (7.4V) and Tenergy 31012 (11.1V) (internet search for the best price). You will need a Li-Ion charger. I have used both of these Tenergy TLP-4000 and Tenergy TB6B chargers.

7) Electronic components

- two TIP120 Darlington NPN transistors
- 2 1N914 diodes
- 2 10uF tantalum caps
- 7805 regular
- 2 10k resistors

WEBSITES TO BUY ROBOT PARTS

Robot parts

Pololu Robots and Electronics (<https://www.pololu.com/>)

Jameco's Robot Store (<http://www.robotstore.com/>)

Robot Marketplace (<http://www.robotmarketplace.com>)

Sparkfun (<http://www.sparkfun.com/>)

Parallax (<http://www.parallax.com/>)

Tower Hobbies (<http://www.towerhobbies.com/>)

Surplus parts

BG Micro (<http://www.bgmicro.com/>)

All Electronics (<http://www.allelectronics.com/>)

Full-service parts

Newark (US) (<http://www.newark.com/>) or **element14 (worldwide)** (<http://www.element14.com>)

Digi-Key (<http://www.digikey.com>)

Mouser (<http://www.mouser.com>)

Jameco (<http://www.jameco.com>)

Part search engine

Octopart (<http://octopart.com/>)



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