What is AFRObot?

AFRObot is an autonomous line following robot designed to retrace existing lines.
Basic Concept

We have a robot with the ability to follow lines.
Prototype Applications

- Warehouse navigation
- Maze solving
- Street line repainting
- Drawing athletics fields
- Perimeter security
Line Detection

The Infrared Reflectance Array is key.
Line Detection

The sensors emit infrared radiation...
Line Detection

And the surface reflects back the IR.
AFRObot in Action
Demonstration
Future Improvements

- WiFi
- GPS
- ADC Infrared Reflectance Sensor
- Staggered IR arrays
- Camera with video analytics
- Larger wheels
- Protective shield
Debugging, Troubleshooting

Lots of room for error, so we needed lots of ways to account for potential issues:

- LEDs
- Test Headers
- UART
Future Advice

- Murphy’s Law Applies.
- Work hard, and most of all, intelligently on the PCB layout.
- Always double check your work.
- Use revision control software.
- Do what Professor Johnson says.
- When all else fails ask your TA.
- Pick a project you like!
Thank You

- Professor Johnson
- Joseph Malcolm
- ECE Capstone Class of 2013
- ECE Shop
- Physics Machine Shop
- AFRObot team
Questions, comments?