

Servo and Protecto

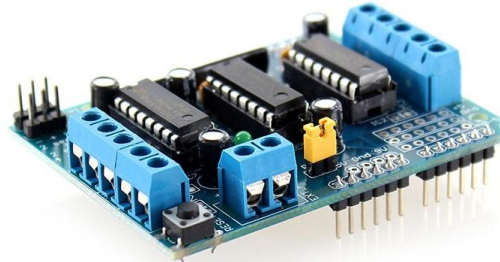
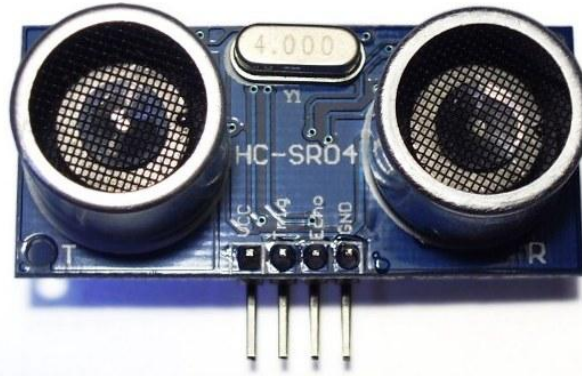
Autonomous robot car

Erik Rhodes
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Robot Behavior

- Autonomous navigation
- Obstacle detection
- Course adjustment
- Cat “friendly”

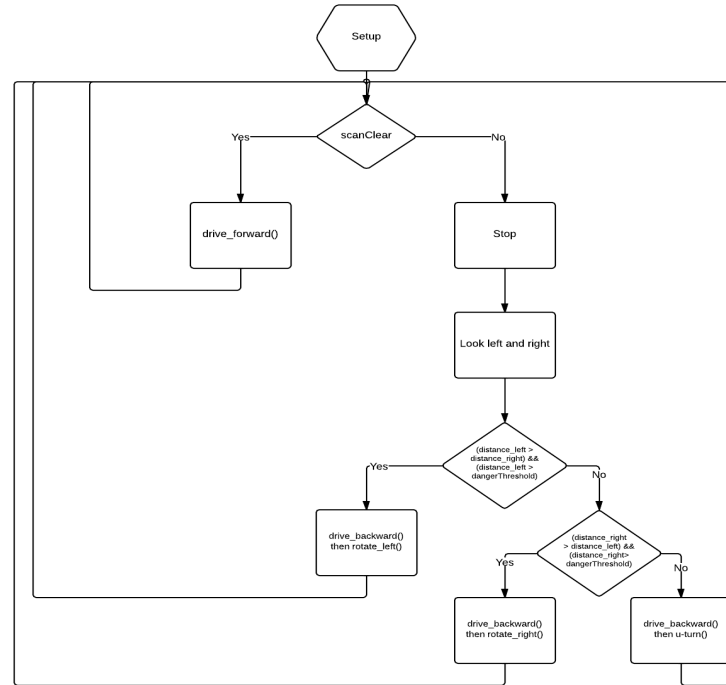
Components



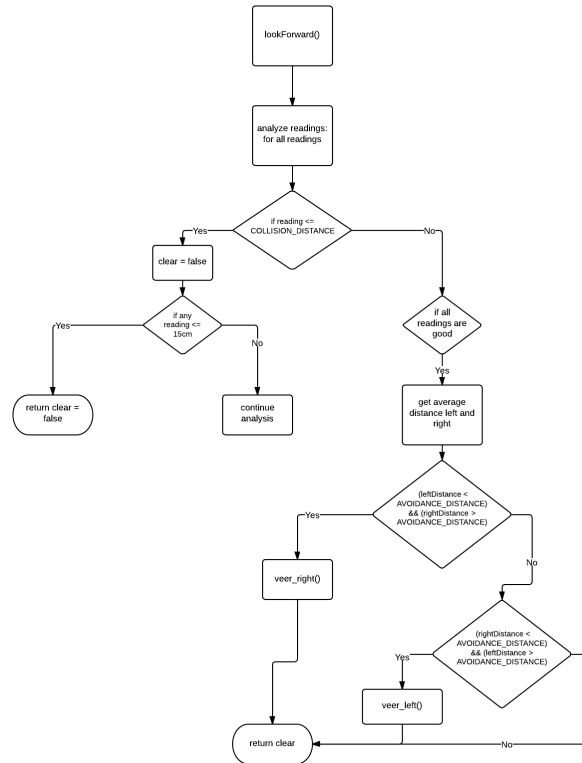
Hardware Components

- Arduino Uno
- L293D Motor Controller
- Robot kit
 - Car chassis, wheels, motors, batteries
- HC-SR04 ultrasonic sensor
 - 2cm-400cm range detection
 - 180 degree navigation
 - Mounted on servo

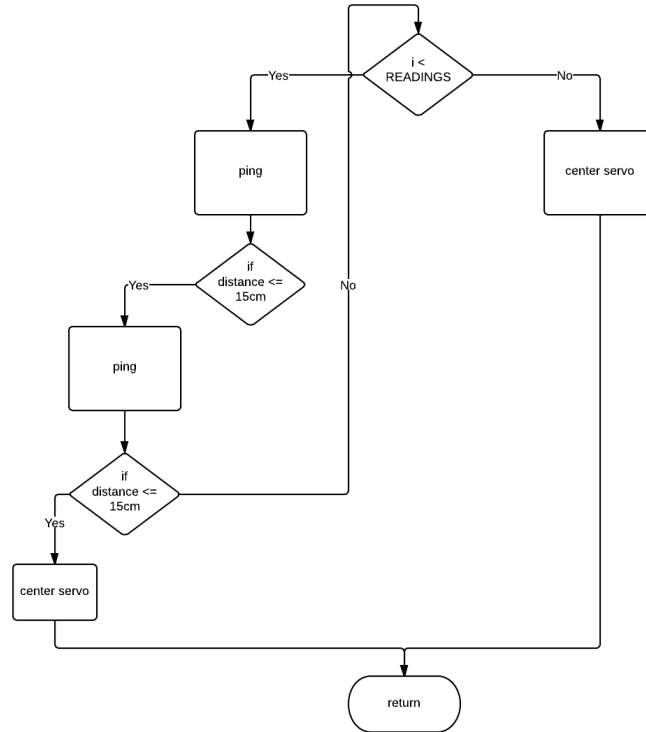
Navigation - main



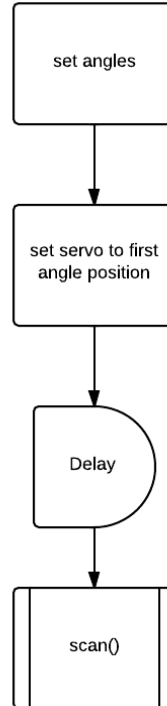
Navigation - scanClear



Navigation - scan



Navigation - look



Navigation

- Victory Turn
 - After certain time
 - Ensures we get an A in the class
 - Ensure our legacy by being a wall of fame winner

Roadblocks

Power issues

- Servo
- Testing
- 6v batteries

Unintended Veering

- Imbalanced motors
- Brushed DC run faster in one direction

Roadblocks

- Power differences
 - Turning at different angles
- Angle of detection
 - Blind spot when veering
- CMUCam
 - Communication problems
- Sonar picking up erroneous values

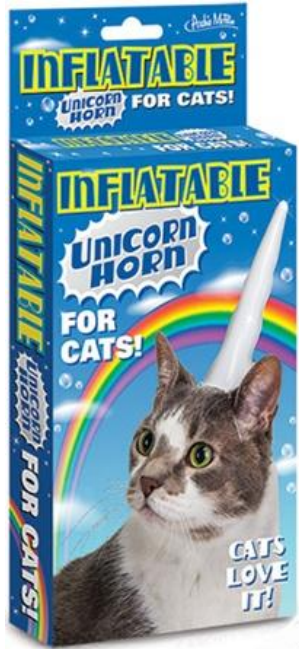
Solutions

- Balance motor power (removed)
- Filter erroneous sonar reading
- Use 9V AA batteries
- Widen sensor angle when navigating forward
- Change collision distance and bot speed

Demo

- Demo
 - Demo

Extra Features



Cat Fighter (beta)

- Attach to robot
- Locate cats and navigate to them
- Spin to hit them*

*Caren hates cats

Future Additions

- Color detection
 - Avoid friends
 - Crush enemies
 - Protecto
- Infrared remote control
- Get rechargeable battery pack