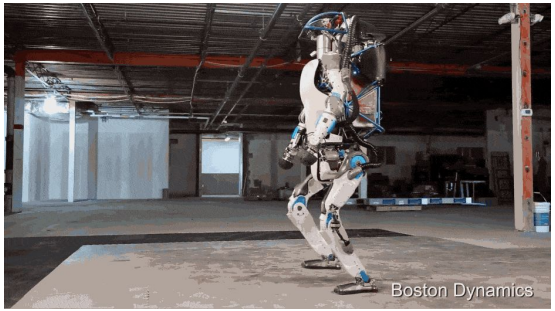
Robotics

By: Josh Panos

What is Robotics

- Mechanical Engineering
- Electrical Engineering
- Computer Science
- Autonomous?
- Asimo?
- Boston Dynamics?

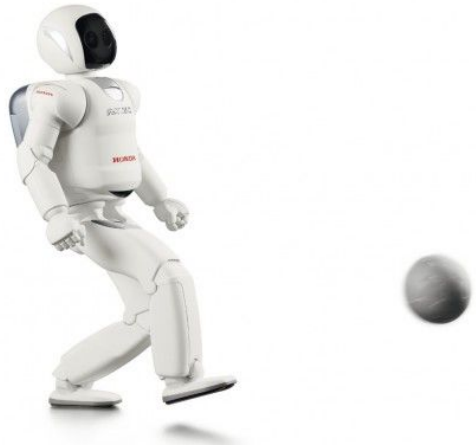


Autonomous

- Autonomous Robots
  - Are not as hard as it seems
- Low level complexity
  - Factory machinery
  - Assembly line arms
- High level complexity
  - Asimo
  - Boston Dynamics
    - These bots intake sensory information and make complex computational responses depending on live information

Honda Asimo

- Fully autonomous humanoid robot
- Abilities
  - Recognize faces
  - Map live environments
  - Run, Walk, Dance, and even Jump
  - Respond to voice commands
- What's to come?
  - Help the elderly and sick
  - Develop Sensors and feedback
  - Firefighters? Chemical spills?

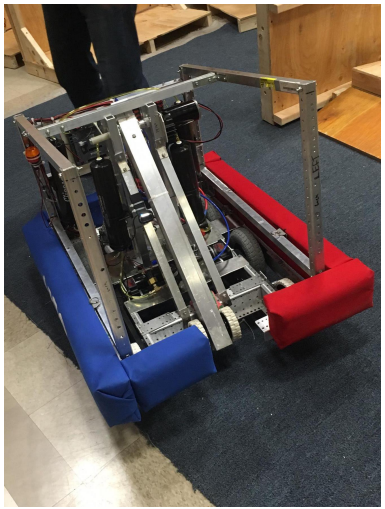


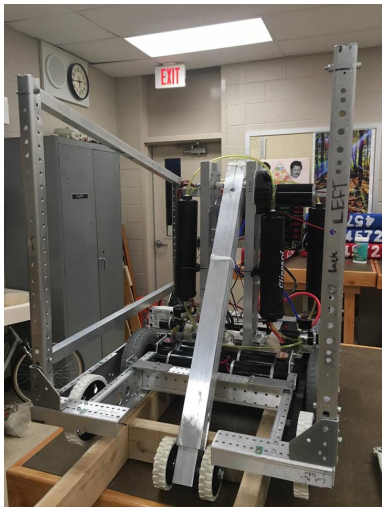
Boston Dynamics

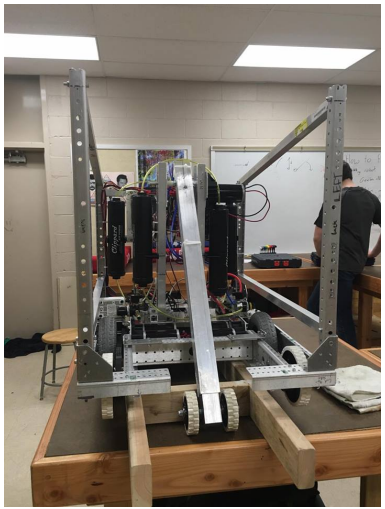
- A company focused on creating more mobile, agile and adaptable robots
- Atlas - The Agile Anthropomorphic Robot (Humanoid)
  - Has 28 Degrees of freedom
  - Runs off a Linux based system
  - Able to navigate outdoor and unstable environments on its own
- Potential Applications:
  - Firefighters & other Hazardous jobs
  - Driver, door man, etc

What I have been doing

- 4 Years of FIRST Robotics
  - A program which combines all disciplines of engineering into one place for students
- We build and code our bot on our own







Video of Robot

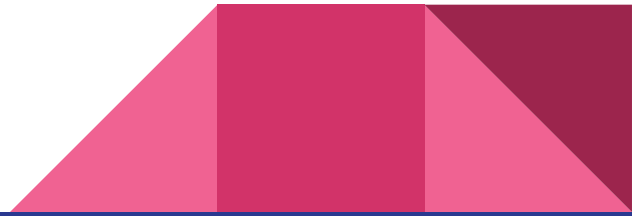
- https://photos.google.com/share/AF1QipPHZ9r0E9uB-MV0qXhSJ2DXTisYare2XUIa0foFvVSzrWHk4MUnqBfx8tumUQy3Bg/photo/AF1QipPFEBVgSO_Az2KW9fcKAjetW-rRJy7Rnb-v1DY?key=blpmRk9OYTI3aUxoUlFpV1FLQjVKRFo0VWczOUt3

What can you do

- Fedora Robotics Suite:
  - Provides easy access to software designed to work with robotics hardware.
  - We utilize Eclipse on our robotics team for programming and code deployment
  - Allows people to experiment with their own software in both real world and virtual environments
- Open Source software can be used to turn your small robot or project into a fully functional robot

How to start on your own

- Kits such as Lego Mindstorm
  - These kits allow you to play with your own software while providing the hardware to experiment with.
- Join groups or blogs online to work with others on interesting projects
- Don’t be afraid to ask questions and ask other for help
- Jumping right in is not easy, but there are tons of people willing to help



Thank you!