ENGR 3421: ROBOTICS I

Into the Autonomous Ground Vehicle

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Safe First!

Don't forget eyes and hands protection!

Go over the syllabus for policies and contents.

Outline

What is a Robot

Our Robot

Github Classroom

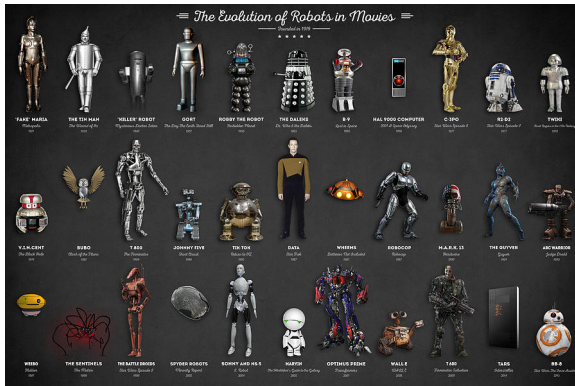# Outline

What is a Robot

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In Popular Culture

A robot is a machine resembling a human being and able to replicate certain human movements and functions automatically.

In Real World

Robots may be constructed to evoke human form, but most robots are task-performing machines, designed with an emphasis on stark functionality, rather than expressive aesthetics.

Car factory robots

Vaccum clean robots

Warehouse robots

Agricultural robots and DJI solutions

Lightshow drones

Toys

In Scientific/Engineering Research

A robot is a machine—especially one programmable by a computer—capable of carrying out a complex series of actions automatically.

Humanoid
Quadrupedal robot
Spherical robot
Flapping robot
Quadrotor / Drone
Underwater robot
Soft robot
Extra-terrestrial rover
You name it...

Autonomous Ground Vehicle (AGV)

A.k.a. automated guided vehicle, mobile robot, unmanned ground vehicle (UGV).
Self-driving cars
Delivery robots
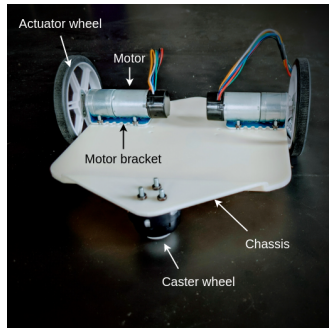Warehouse robots

Build it, Break it, Fix it

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Our Robot

Most parts (all except the chassis) are purchased from Pololu

- Chassis (3D model)
- Caster wheel (Pololu #: 2691)
- Motor brackets (Pololu #: 2676)
- Motor (Pololu #: 4805)
- Actuator wheel (Pololu #: 3690)

3D printer @ CCCS 112

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Github

GitHub is a website and cloud-based service that helps developers store and manage their code, as well as track and control changes to their code.

Github Classroom

- GitHub Classroom automates repository creation and access control, making it easy to distribute starter code and collect assignments on GitHub.
- This is the place you'll complete most (if not all) of your assignments.

Note

- Access Github Classroom: https://classroom.github.com
- Check your email for my invitation.