

EN1-06: Simple Robotics

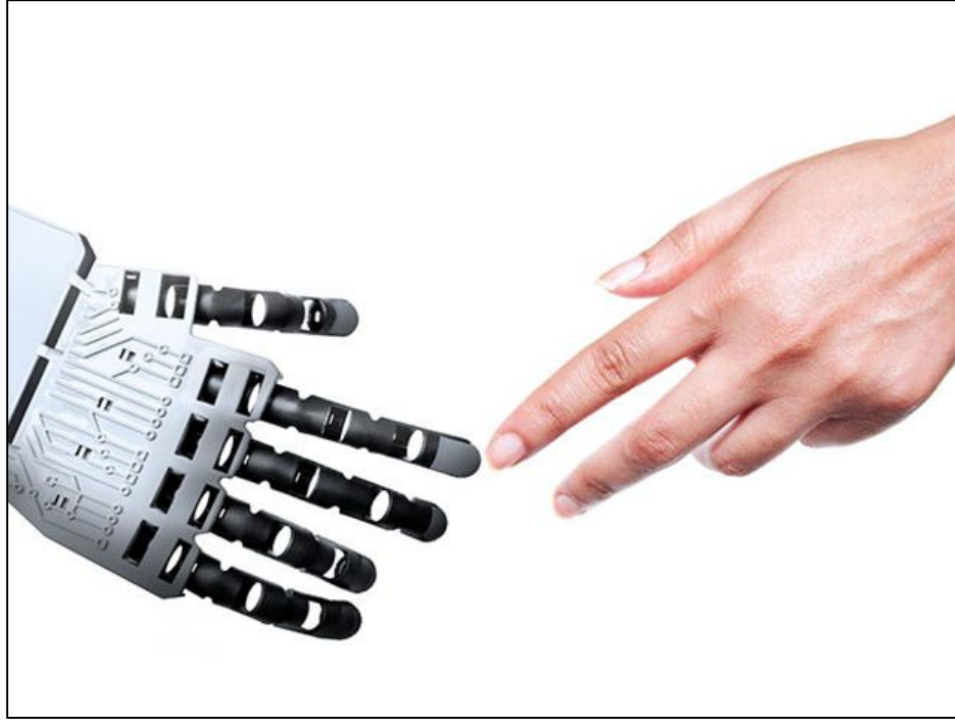
October 26th, 2016



Schedule

- In the News
- Assignment 5: Haunted House
 - Setup
- LabVIEW Tutorial: Front Panel Picture Control

What AI Experts Say Smart Machines Will Do to Human Jobs



<http://spectrum.ieee.org/tech-talk/robotics/artificial-intelligence/what-ai-experts-say-the-technology-will-do-to-jobs/>

Uber Self-Driving Truck Packed With Budweiser Makes First Delivery in Colorado



<https://www.bloomberg.com/news/articles/2016-10-25/uber-self-driving-truck-packed-with-budweiser-makes-first-delivery-in-colorado>

WATSON IS NOW HELPING KIDDIES LEARN MATH

Watson, IBM's cognitive computer technology, has come a long way since it creamed two human champions on Jeopardy five years ago. It's been used to assist cancer doctors on possible treatments. More recently, a startup company, ROSS Intelligence, began using it as platform to market speedy legal-research assistance to law firms. Now the IBM Foundation says Watson is ready to do something really challenging: teach 3rd grade math. For the past two years, it has worked with the American Federation of Teachers and some of its members to develop Teacher Advisor, an artificial-intelligence system that enables teachers to pose questions and helps them build personalized lesson plans. A teacher can seek out the best lesson plans—derived from other teachers who are math experts—then customize them for his or her classroom needs.

It can also help teachers come to grips with Common Core standards—a national set of learning goals—and implement them in their lessons. Watson helps teachers understand the prerequisites used for each block of skills and suggests exercises to teach them. A recently completed pilot program involved around 200 teachers around the country. IBM notes that because Watson is self-learning, the system will continuously improve the more teachers use it.





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Civic Tech Challenge Hackathon

The Generation Citizen action civics program helps students from Greater Boston middle and high schools launch action projects to advocate for change on our community's most significant problems. By November 5th, GC students will have identified a significant community issue and be just about ready to reach out to local decision-makers and constituents to advocate for change on their issue.

At the hackfest, people interested in fields from digital marketing and graphical design to programming and data visualization come together to partner with the high school student teams to build innovative add-ons that can bolster their case and accelerate their ability to be changemakers.

Hacking happens on **Saturday, November 5th at Microsoft 1 Cambridge Center**, where breakfast, lunch, and snacks will be provided throughout the day. Then, on Thursday, November 10th teams present their work to an audience of leading civic tech innovators and fans at the evening reception at Microsoft NERD, Cambridge.

We would love to have students from Tufts, or anyone you know with relevant skills join the hackfest.

To learn more, visit www.civictechchallenge.org and sign up for the Hackathon [HERE](#).



Assignment 5: Haunted House

Project 5: Halloween Robot

EN1-06 Fall 2016

In-class Haunted House (at Tufts CEEO) due on Monday, October 31st, 2016

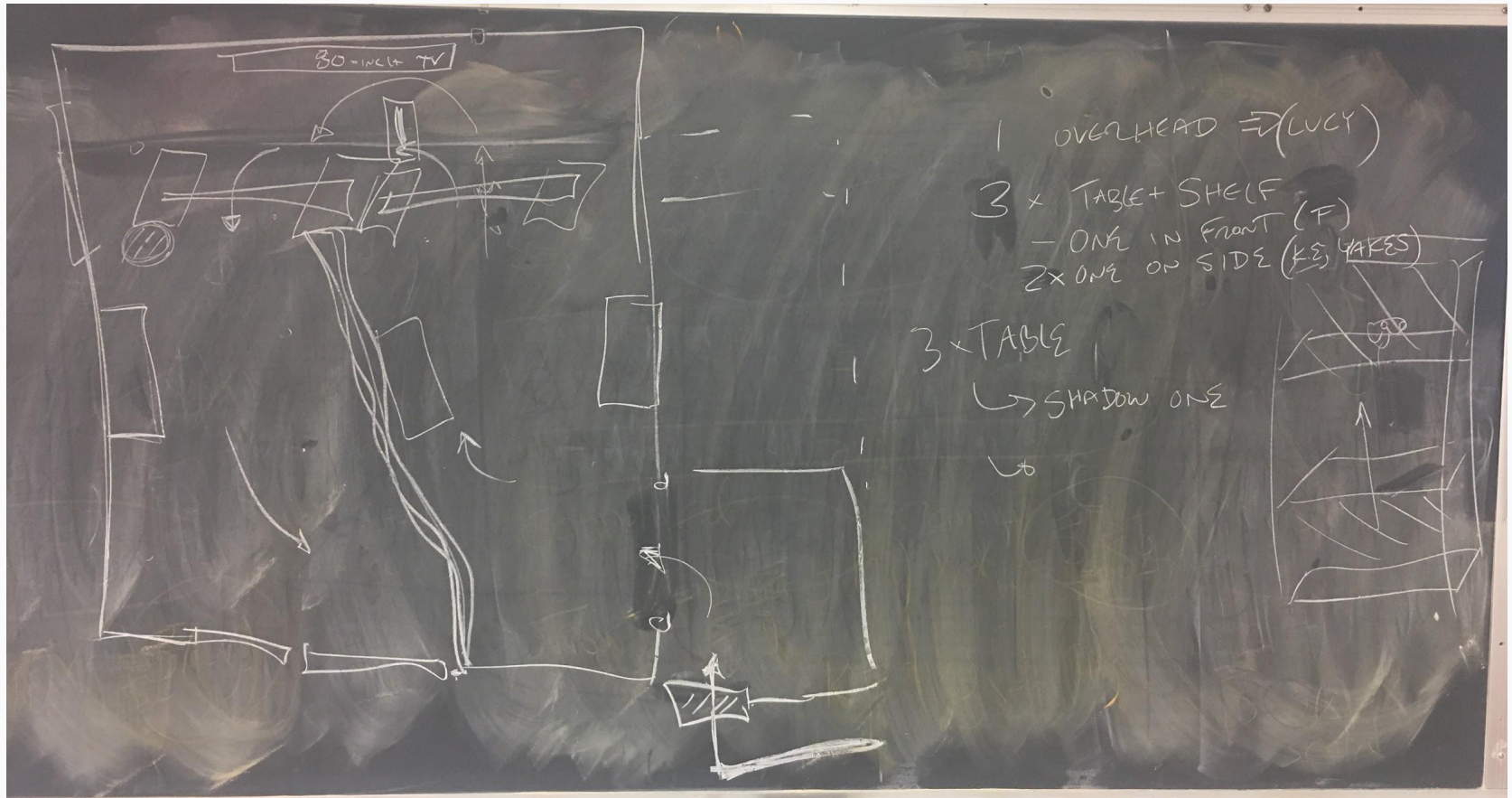
Documentation (description, images, videos, code, etc) due to website by Mon (10/31) by 9pm

Project Description: For Halloween (Oct 31st), you are going to create interactive robotic Halloween exhibits that will be part of a Haunted House hosted by the Tufts University Center for Engineering Education and Outreach (CEEEO), located at 200 Boston Ave, Suite G810.

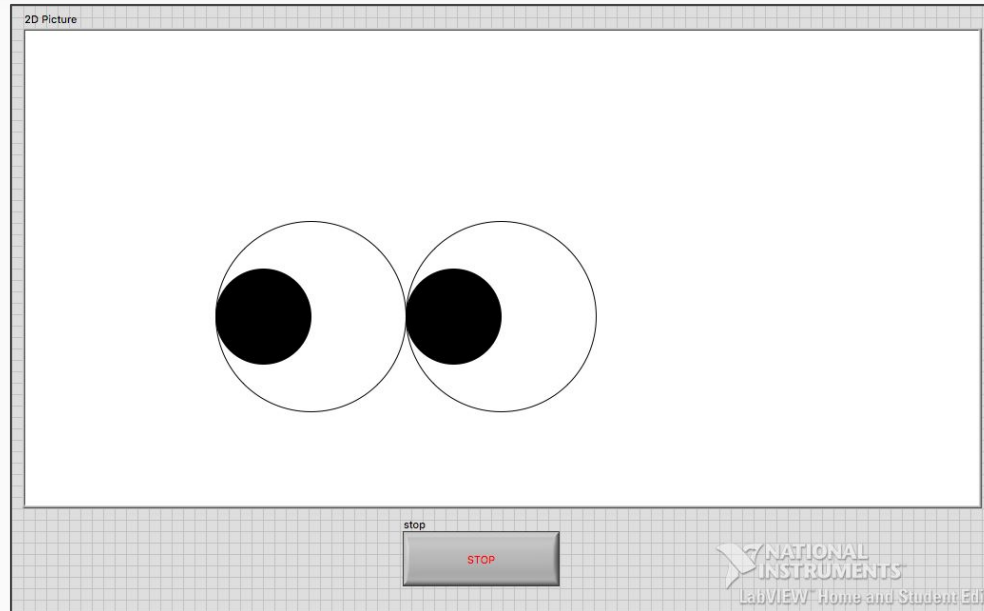
Details (Hardware/Software): You will use your LEGO MINDSTORMS EV3 Kit for doing the sensing, thinking, and actuating (perhaps with assistance from your computer, e.g. sounds). Some Halloween themed supplies will be provided by the instructor. Beyond that, you can use any additional materials (you find or create) for implementing your Halloween robot. You will be programming your robot in LabVIEW. You can run your code in **Main Application Instance** (via the computer) or deployed **Remotely**, whichever makes more sense for your individual project.

You will be combining pairs into small groups of four to work on this project; this means your group will now have access to two MINDSTORMS kits (and thus, two EV3s and twice the motors/sensors/parts as an individual kit). Also, with twice as many participants in your group, it is expected that the complexity of the robot/project should reflect the size of your group, in physical construction and programming. Your Halloween robot should react to user input (e.g. detect when someone is near? have a pushbutton input?) and perform some appropriate reaction/response. Your code should be more complex than just "wait for sensor, initiate motors, loop"; there are multiple ways to achieve this (brick-to-brick communication, interacting with front panel controls, etc). The emphasis for this project should also be reliability, repeatability (robot needs to function for 45-minutes as multiple people interact with it), and stability.

Haunted House Layout

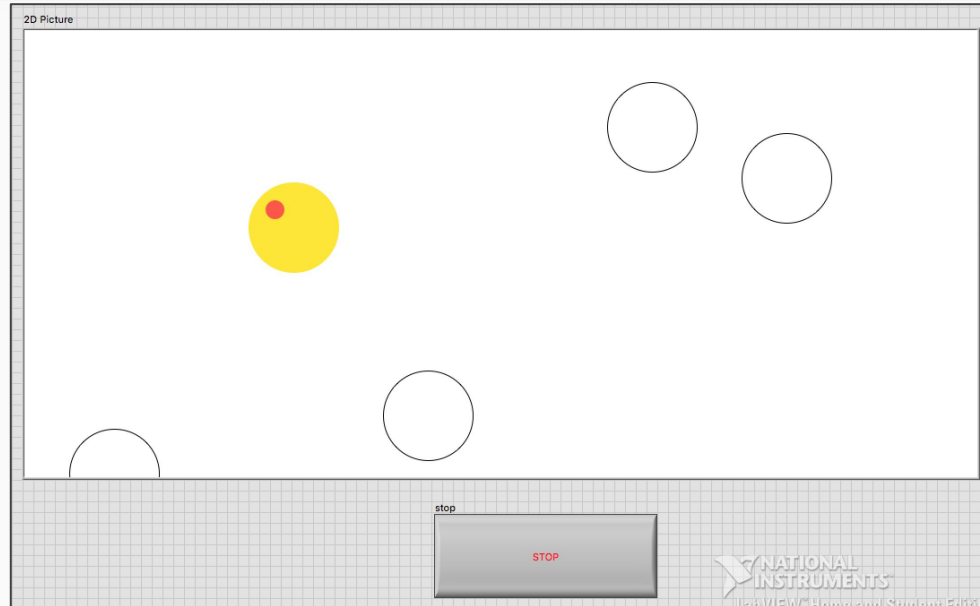


LabVIEW Tutorial: Front Panel Picture Control



<http://www.dreslab.com/robotics2016/2016/10/26/front-panel-picture-control-pt-1/>

More Front Panel Picture Control



<http://www.dreslab.com/robotics2016/2016/10/26/front-panel-picture-control-pt-2/>