

EN1-06: Simple Robotics

October 12th, 2016



Schedule

- In the News
- Assignment 4: Robotic Magic Trick
- Engineering Design Process

In the News

Artificial intelligence positioned to be a game-changer: It might not be long before machines begin thinking for themselves -- creatively, independently, and sometimes with better judgment than a human



<http://www.cbsnews.com/news/60-minutes-artificial-intelligence-charlie-rose-robot-sofia/>

Pathways to Science website

The screenshot shows the homepage of the Pathways to Science website. The browser address bar displays pathwaystoscience.org/index.aspx. The website header features the IBP logo and the title "Pathways to Science" with the subtitle "Science, Technology, Engineering, and Mathematics". A navigation bar includes links for Home, K-12, Undergrads, Grad Students, Postdocs, and Faculty & Admin, along with "Sign up!" and a "Donate" button. A left sidebar lists "Programs Search", "Resource Library", "Webinars", "Partners Directory", and "About us". The main content area is titled "Pathways to Science" and states the mission: "Our mission is to increase diversity in science, technology, engineering, and mathematics (STEM). Read more about us and our work." Below this is a "Students" section with the text "Search for a program . . . find your future!" and three icons: a clipboard for "Sign up for funding and program information", a magnifying glass for "Search 1,500 STEM programs and funding opportunities nationwide", and a computer monitor for "Check out our webinars and professional development materials". A right sidebar titled "Project Spotlights" lists "AGEP Pathways & Connections", "Maine STEM", "NASA One Stop Shop Initiative", "Pathways to Engineering", and "Pathways to Ocean Science", with a link to "View IBP's Project Portfolios".

pathwaystoscience.org/index.aspx

IBP Pathways to Science
Science, Technology, Engineering, and Mathematics

Skip to Main Content

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About us


Pathways to Science


Our mission is to increase diversity in science, technology, engineering, and mathematics (STEM). [Read more about us and our work.](#)

Students

Search for a program . . . find your future!

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Project Spotlights

- [AGEP Pathways & Connections](#)
- [Maine STEM](#)
- [NASA One Stop Shop Initiative](#)
- [Pathways to Engineering](#)
- [Pathways to Ocean Science](#)

[View IBP's Project Portfolios](#)

<http://pathwaystoscience.org/>

Amazon Robotics

Amazon Robotics Tech Talk, October 12, 6-7:30pm, Dowling 745A

Come join us to learn more about Amazon Robotics and to mix and mingle with members of our team.

What We Do: Amazon Robotics, a wholly owned subsidiary of Amazon.com, empowers a smarter, faster, more consistent customer experience through automation. Amazon Robotics automates fulfillment center operations using various methods of robotic technology including autonomous mobile robots, sophisticated control software, language perception, power management, computer vision, depth sensing, machine learning, object recognition, and semantic understanding of commands.

Amazon Robotics has a dedicated focus on research and development to continuously explore new opportunities to extend its product lines into new areas that will redefine what 'Now' means and allow Amazon to continue to offer customer experiences that will delight and amaze.

Headquartered in the Boston area, Amazon Robotics is located in the epicenter of robotic innovation and has developing corporate and academic partnerships to support innovation throughout the robotics ecosystem, to bring cutting edge technology into the field faster.

<https://www.myinterfase.com/tufts/CareerFair/Detail/dHh4TmdqRVdQcEZTU2ovRzBBdjRtRVMwbUdzWk9Zbk9jSXIqEXNDbmhDOD01>

Tufts PolyHack: October 14 – October 15

Oct 14 at 6:00 PM to Oct 15 at 4:00 PM

REGISTER: <http://register.tufts.io/>

WEBSITE: <http://poly.tufts.io/>

MENTOR SIGNUP: <http://go.tufts.io/mentor>

DESIGN WARS: <http://go.tufts.io/design-wars>

Come to our All-Tufts Hackathon! People of all skill levels are encouraged to attend. Hone your coding and design skills, get free food and swag, win awesome prizes!



Search "Tufts PolyHack" on FB

Assignment 4: Robotic Magic Trick

Project 4: Robotic Magic Trick**EN1-06 Fall 2016**

Project (in-class demonstration/video presentation) due on Monday, October 17th, 2016

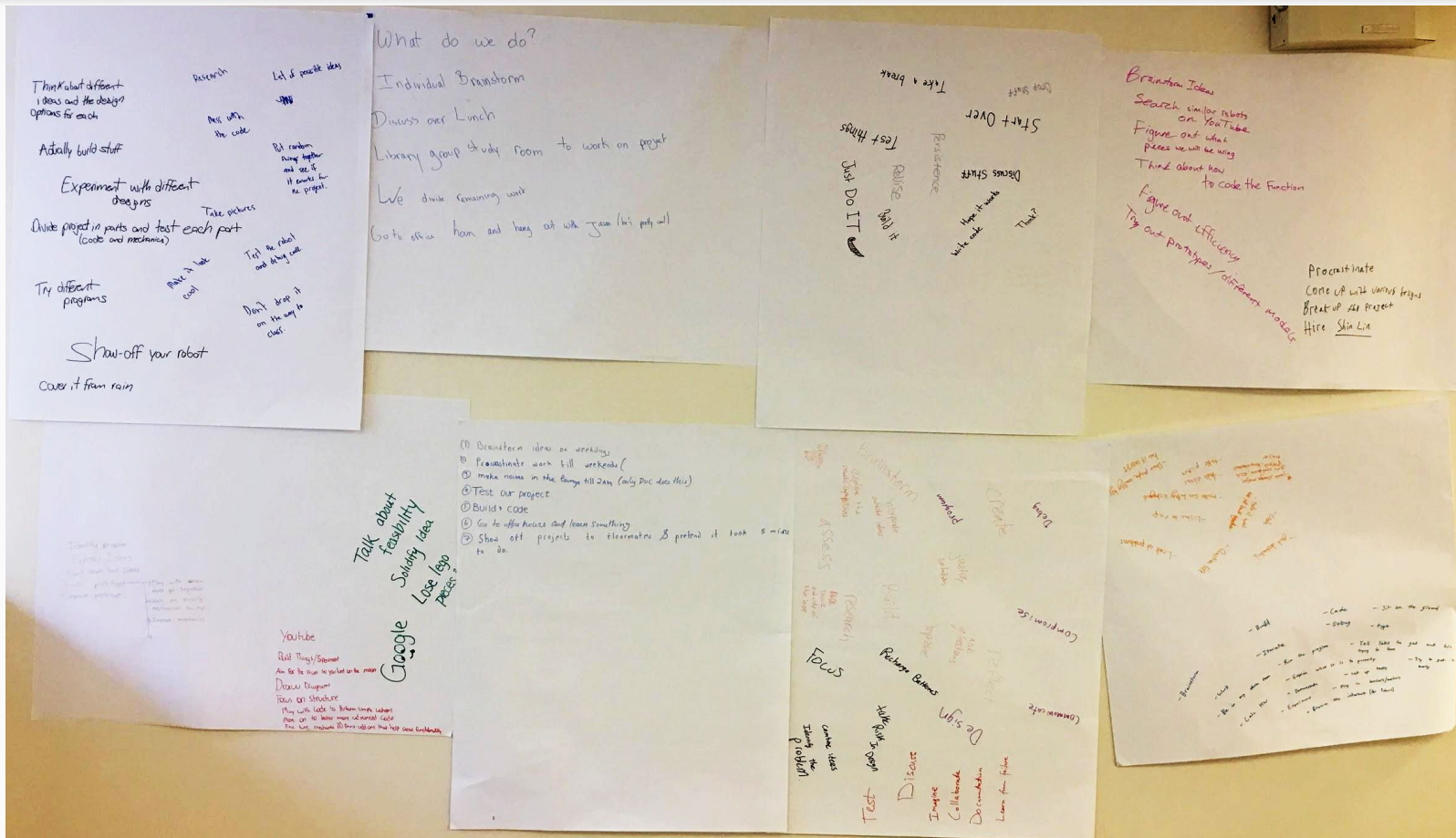
Documentation (description, images, videos, code, etc) due to website by Mon (10/17) by 9pm

Project Description: Create a robotic magic trick (either performed by the robot or performed by you and facilitated by the robot).

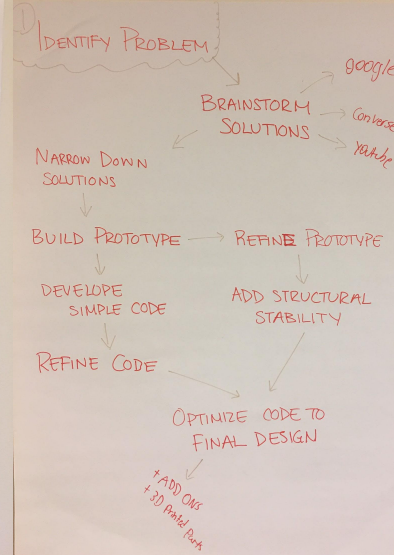
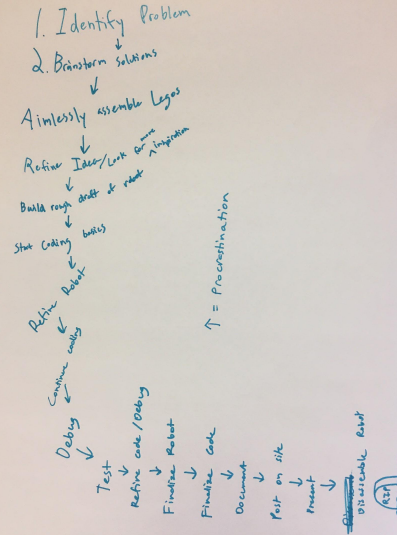
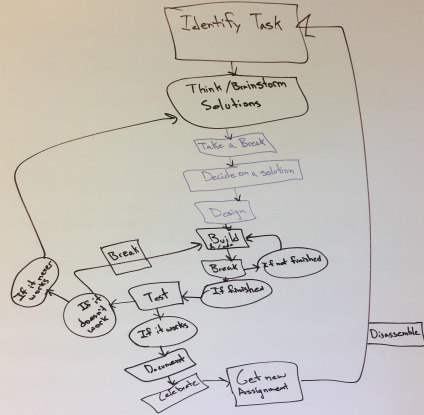
Hardware and Programming: You will use your LEGO MINDSTORMS EV3 Kit as well as any other materials needed for achieving the effect. You will program your robot in LabVIEW.

Assignment: You can work in pairs or groups of four (your choice); the complexity of the robot/project should reflect the size of your group (and this being a “two week” long project). For this assignment the goal is to perform a magic trick leveraging the LEGO MINDSTORMS EV3, either having the robot perform the magic trick (e.g. autonomously) or having you (the human) perform the magic trick facilitated by some robotic mechanism. The trick only needs to work once, and from a particular angle (you will be submitting a video recording of the trick; it does *not* need to be performed live). In addition to the video of the trick being performed, you need to submit a second video documenting/demonstrating the mechanism (yes, revealing the “trick,” which of course a true magician would never do!).

"What do you do?" when doing your projects

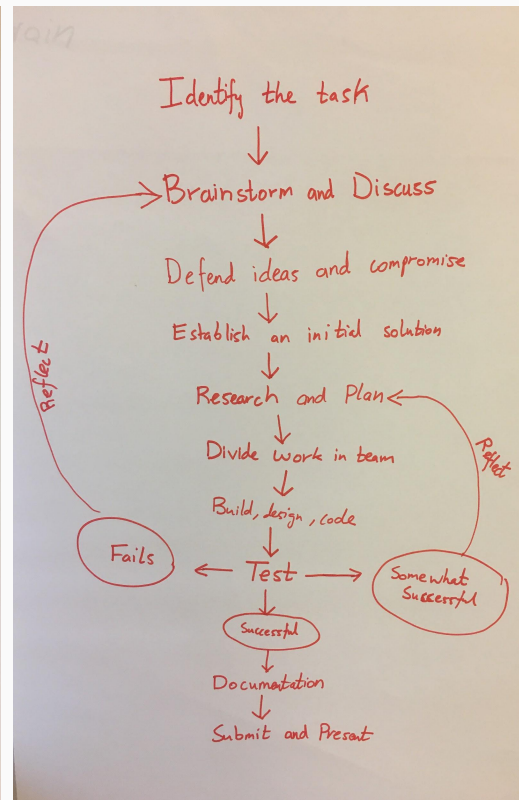
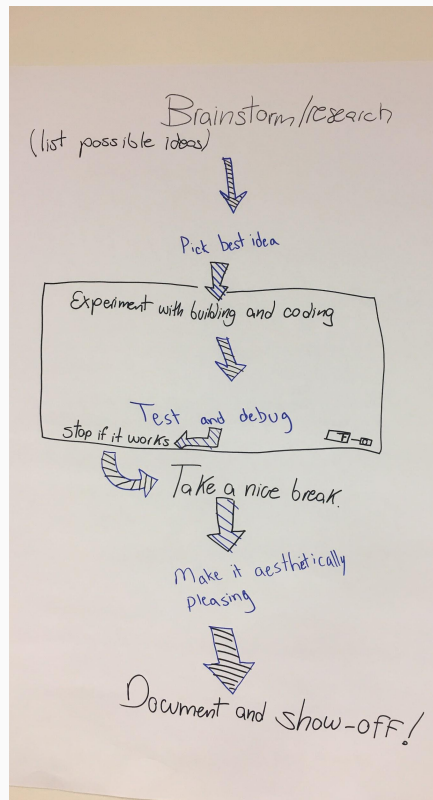
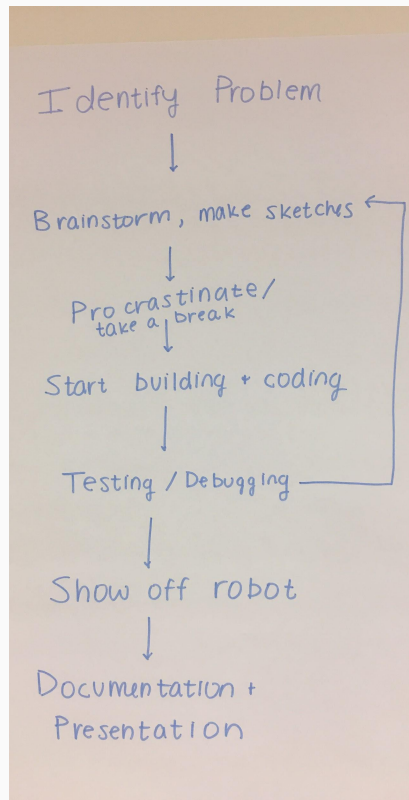
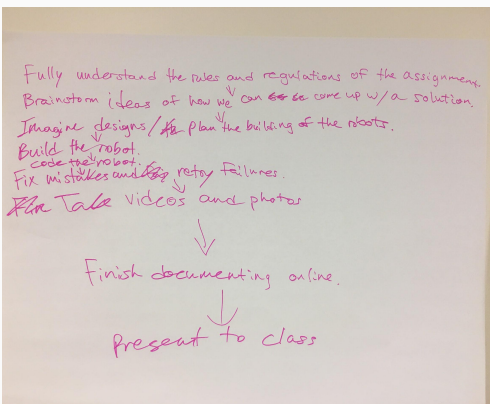


“How do you do” your projects?



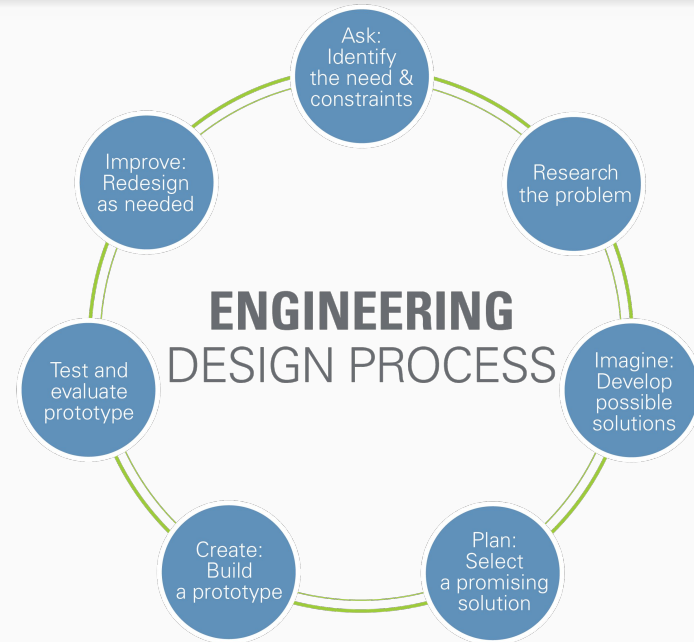
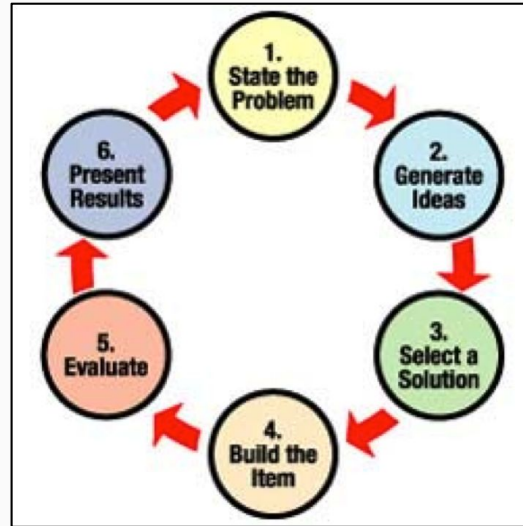
| | |
|-------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Monday (Day 1) | <ul style="list-style-type: none"> - Get assignment in class - Individual Brainstorm during/after class - Text each other about our <u>great</u> ideas |
| Tuesday (Day 2) | <ul style="list-style-type: none"> - Get lunch and discuss ideas - Go to reserved room in library - Work in reserved room for 3 hours <ul style="list-style-type: none"> ↳ yell at Kevin for breaking things - Curse at pieces for not fitting - Go back to dorm |
| Wednesday → Saturday (Day 3 → 6) | <ul style="list-style-type: none"> - Nothing - Maybe work on own if need be |
| Sunday (Day 7) | <ul style="list-style-type: none"> - Finish code at office hours - Test Robot - Hang out with Jason |

“How do you do” your projects?



Engineering Design Process (EDP)

The engineering design process is a series of steps that engineering teams use to guide them as they solve problems. The design process is cyclical, meaning that engineers repeat the steps as many times as needed, making improvements along the way.



“Double Click” (see code on website)

