

Final Projects Ideas and Guidelines

Lecture #2: A Word on Final Projects
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Fall 2016

Project Goals

- Apply knowledge from class lectures and discussions
- Developing a significant piece of software
- Begin master's thesis or PhD dissertation research
- Publish papers

Project Guidelines

- 5-6 weeks to do the project
 - scope should fall within timeframe
 - milestones should sync up with project status report days
- Should have some form of evaluation
- Solid code design for reuse
- Research component

Project Proposal

- Must get proposal approved by professor
- Proposal should include
 - introduction to problem
 - related work
 - what you are going to do
 - what are the novel components
 - how you are going to do it (i.e., strategy)
 - measure of success

Project Ideas – Pen-based Shader



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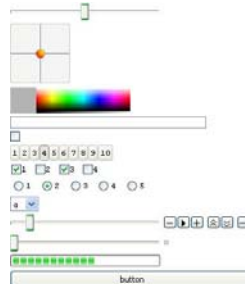
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Project Ideas – Mathematica



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RadioButtonBar[2, Range[5]], PopUpMenu[a, {a, b, c}], Animator[],  
Manipulator[], ProgressIndicator[.6], Button["button"]}]
```



Sketching Interface to Mathematica

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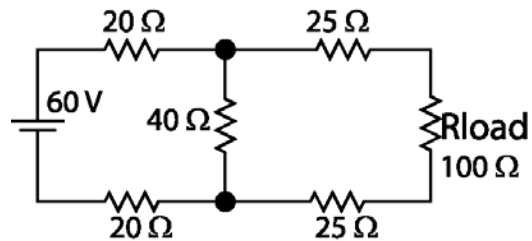
Project Ideas – iPhone/iPad

- Create a cool touch-based app for the iPhone or iPad

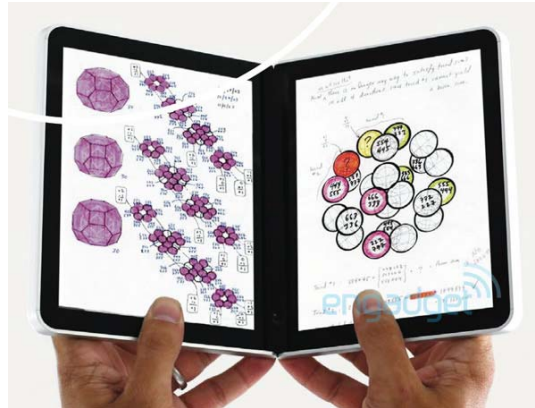


Project Ideas – Circuit Tool

- Sketch out circuit diagrams



Project Ideas – Interactive eBooks

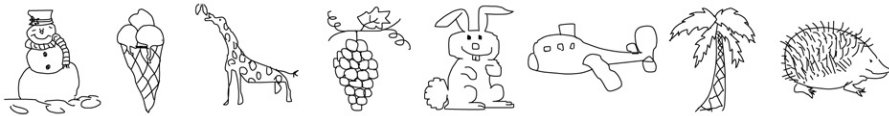


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Drawing Recognition



How Do Humans Sketch Objects?
ACM Transactions on Graphics (Proc. SIGGRAPH 2012)
Mathias Eitz, James Hays and Marc Alexa

Can we do better?

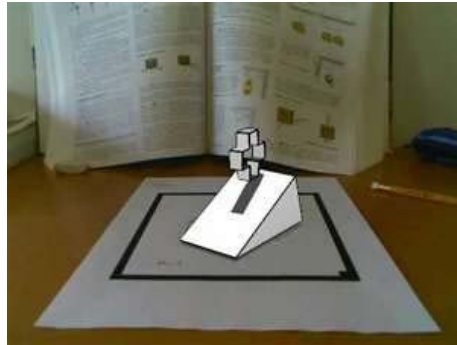
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AR Sketching

- Sketch objects then construct 3D representations in AR (Physics education)



Bergig et al. 2009 – Paper at ISMAR 2009

Project Ideas – Paper Projects

- Implement a paper and make improvements
 - Sketch
 - Teddy
 - Ladder
 - etc...



Human Robot Interaction (1)

- Sketch-based (touch,pen) UI to control robots
 - direct teleoperation
 - guided operation



Kinova's JACO



Bioid's DARwin-OP

Human Robot Interaction (2)



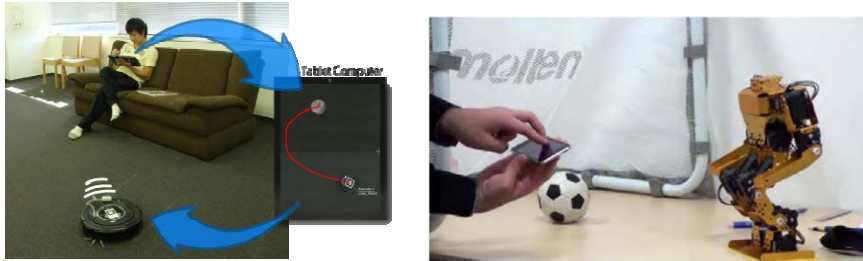
Microsoft Robotics Studio
<http://www.microsoft.com/robotics/>

Gazebo (ROS) – <http://gazebosim.org/>

Human Robot Interaction (3)

- Inspiration from Igarashi's Work

http://www.designinterface.jp/en/projects/index_13.html



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Semantic Sketching



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