

# Final Projects Ideas and Guidelines

Lecture #2: A Word on Final Projects  
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Fall 2013

## 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

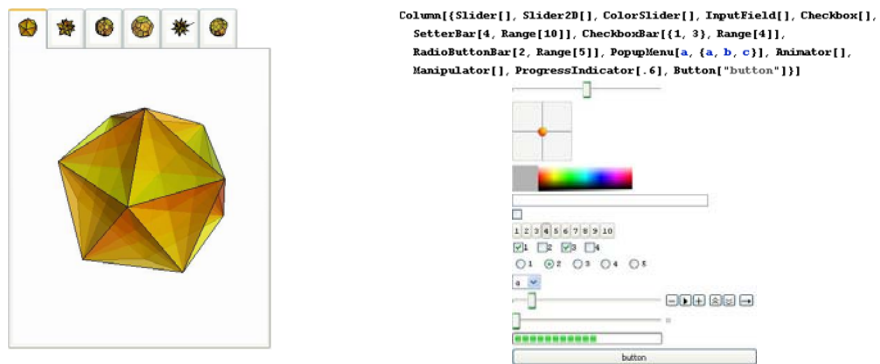


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CAP 6105 – Pen-Based User Interfaces

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## Project Ideas – Mathematica 9



Sketching Interface to Mathematica

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CAP 6105 – Pen-Based User Interfaces

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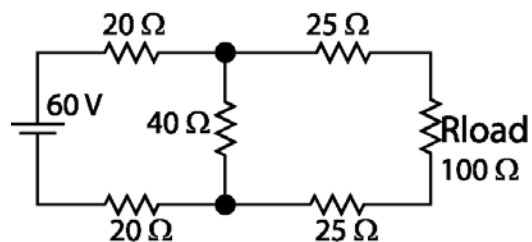
## Project Ideas – iPhone/iPad

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

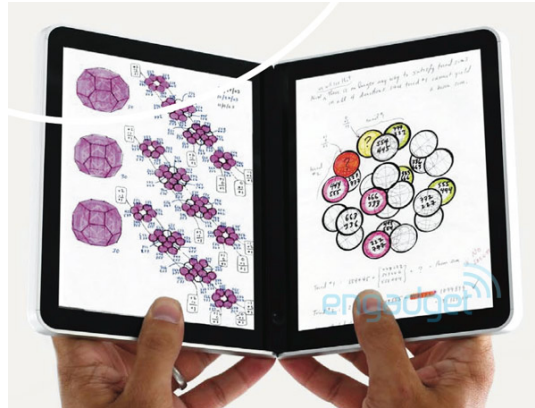


## Project Ideas – Circuit Tool

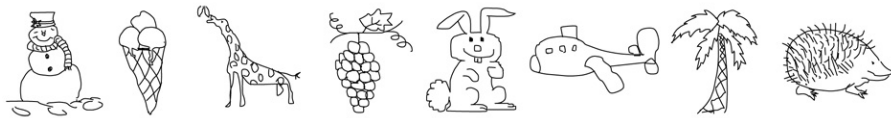
- Sketch out circuit diagrams



## Project Ideas – Interactive eBooks



## Drawing Recognition

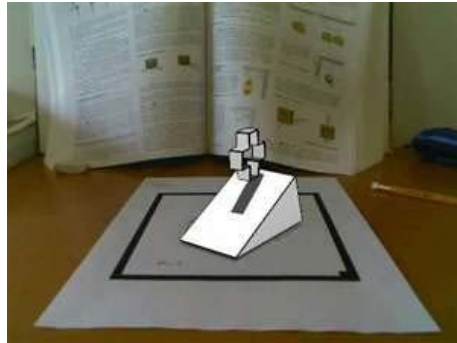


**How Do Humans Sketch Objects?**  
**ACM Transactions on Graphics (Proc. SIGGRAPH 2012)**  
**Mathias Eitz, James Hays and Marc Alexa**

**Can we do better?**

## AR Sketching

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

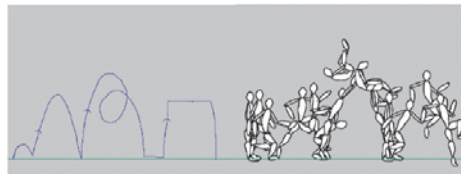


Bergig et al. 2009 – Paper at ISMAR 2009

## 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](http://www.designinterface.jp/en/projects/index_13.html)

