Engineers of Catan

Group 8
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ECE 445
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Introduction

• Electronic “Settlers of Catan” board game
  • Faster gameplay
  • Faster initial game setup
  • No missed resources during distribution

• Why?
  • Nothing similar available
  • Unique challenges
    • Piece detection
    • Board design
    • Game's reconfigurable layout and pieces
Original Design

- Game piece
- Robber
- Board tile
- Dice module
- User-display module
- Master module
Passed All Requirements

- $I^2C$
- Hall effect sensors
- Audio jacks
- RGB LEDs
- 7-segment displays
- Durable
Making & Special Thanks

- Offhand suggestion – Joe Shim
- Artistic considerations – Sarah Adams
- PCB
  - Prototype – Breadboards
  - Design – Eagle
  - Manufacture – ECE Parts Shop, esp. Mark Smart
- AutoCAD
  - Board base – ECE Machine Shop
  - Playing surface & frames – CU Community Fab Lab
- Pieces – MakerLab
Testing & Debugging

- Continuity testing
- Soldering
- Plugged in
Challenges

• Assemble & debug on large scale
• Troubleshoot after assembly
Successes

• Piece detection
  • Easy to assemble
  • Accurate
  • Durable
• Hall effect sensors
  • Easy to assemble
  • Reliable
  • Detect through top
• Fit & finish
Ethical Concerns

• Copyright
• Safety
  • Small pieces
  • Wires
  • Power supply
Further Work

• Finish and refine software
• More powerful master
  • Customize games
  • Internet
    • Social network
Questions

We are both graduating this Spring!