Preliminary Design Review
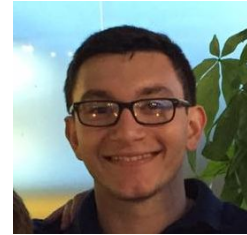
Team Castle Quest
October 19, 2016

Team Castle Quest

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What's the Problem?

- Game play is no longer group-centric
- Video games, phone/ipad games are often single player
- Lack of social interaction in current games
- Virtually multiplayer, physically singleplayer

How significant is the problem?

- Entertainment gaming has shifted to online gameplay
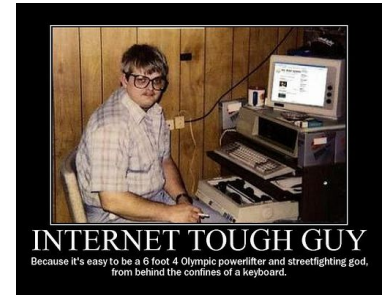- We can't even play together in the same apartment

Context: effect on individuals?

- Stereotype surrounding individuals who spend their time online being unable to have healthy social interactions

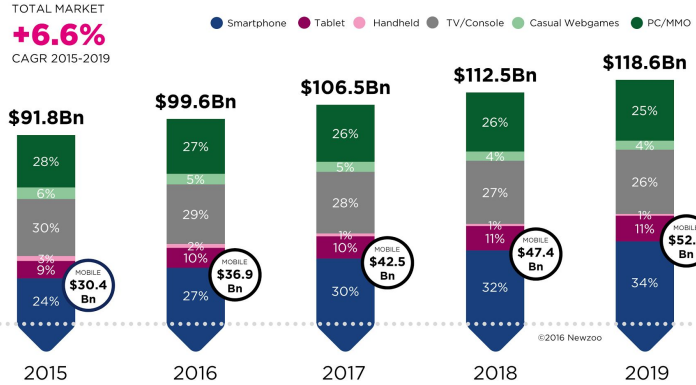- Having time with others helps the development of empathy

Context: Effect on groups?

- Game companies and rating sites have expanded the idea that single player is the funnest experience
- Board game market has grown

IGN US

2015-2019 GLOBAL GAMES MARKET
FORECAST PER SEGMENT TOWARD 2019

TOTAL MARKET
+6.6%
CAGR 2015-2019

Smartphone ● Tablet ● Handheld ● TV/Console ● Casual Webgames ● PC/MMO

$91.8Bn
28%
6%
30%
3%
9% MOBILE $30.4 Bn
24%

$99.6Bn
27%
5%
29%
2%
10% MOBILE $36.9 Bn
27%

$106.5Bn
26%
5%
28%
1%
10% MOBILE $42.5 Bn
30%

$112.5Bn
26%
4%
27%
1%
11% MOBILE $47.4 Bn
32%

$118.6Bn
25%
4%
26%
1%
11% MOBILE $52.5 Bn
34%

2015   2016   2017   2018   2019

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Source: ©Newzoo | Q2 2016 Update | Global Games Market Report Premium
newzoo.com/globalreportpremium/

newzo

1.
Inside PC   June 28, 2016   EDITORS' CHOICE **10** Masterpiece
Adventure - Inside is the second title from PlayDead, creators of the breakthrough game Limbo. Hunted and alone, a boy finds...
Review | Guide | Cheats
+ Follow

2.
The Witness PC   January 25, 2016   EDITORS' CHOICE **10** Masterpiece
PC Download
Puzzle - This puzzling mystery game is the creation of Jonathan Blow, developer of the award-winning game Braid.
Review | Guide | Cheats
+ Follow

3.
The Last of Us: Remastered   July 28, 2014   EDITORS' CHOICE **10** Masterpiece
PlayStation 4
Action - Survive an apocalypse on Earth in The Last of Us Remastered, a PS4 port of the original game that runs in 1080p and...
Review | Guide | Cheats
$49.99 at Dell

…

11.
Super Mario Galaxy 2 Wii   May 20, 2010   EDITORS' CHOICE **10** Masterpiece
Platformer - The interstellar adventure continues with the second Super Mario game set out way out amongst the stars of the cosmos.
Review | Video Review | Guide | Cheats
$24 Game Reviews at IGN
See It   + Follow

Requirements Analysis: Specifications

- Meet child safety standards of Consumer Product Safety Commission
- Game should fit into a 1ft^3 container
- Game should weigh < 5 lbs
- 10+ hours battery life

- Durability to survive transport and repetitive construction/deconstruction
- Support for up to 4 players
- Simple, intuitive gameplay mechanics
- Inexpensive
- Fun to play

Design Alternatives

- ## JackBox.tv
  - Brought people together to play a game
  - Main focus is phones and TV
- ## Pokemon Go
  - Brought people outside
  - Encouraged urban exploration
  - Repetitive gameplay and technical issues
  - Quick decline in active users
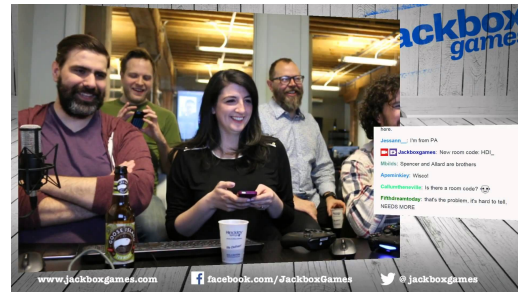
Our Solution: Castle Quest

- Electronic board game from the early 80's

- Revamp, reinvent, and modernize gameplay and design

- Provide encouragement and excitement around a table

- Potentially work with original creators (Milton Bradley)

- The object of the game is to amass an army, collect the three keys to the Tower, and defeat the evil within
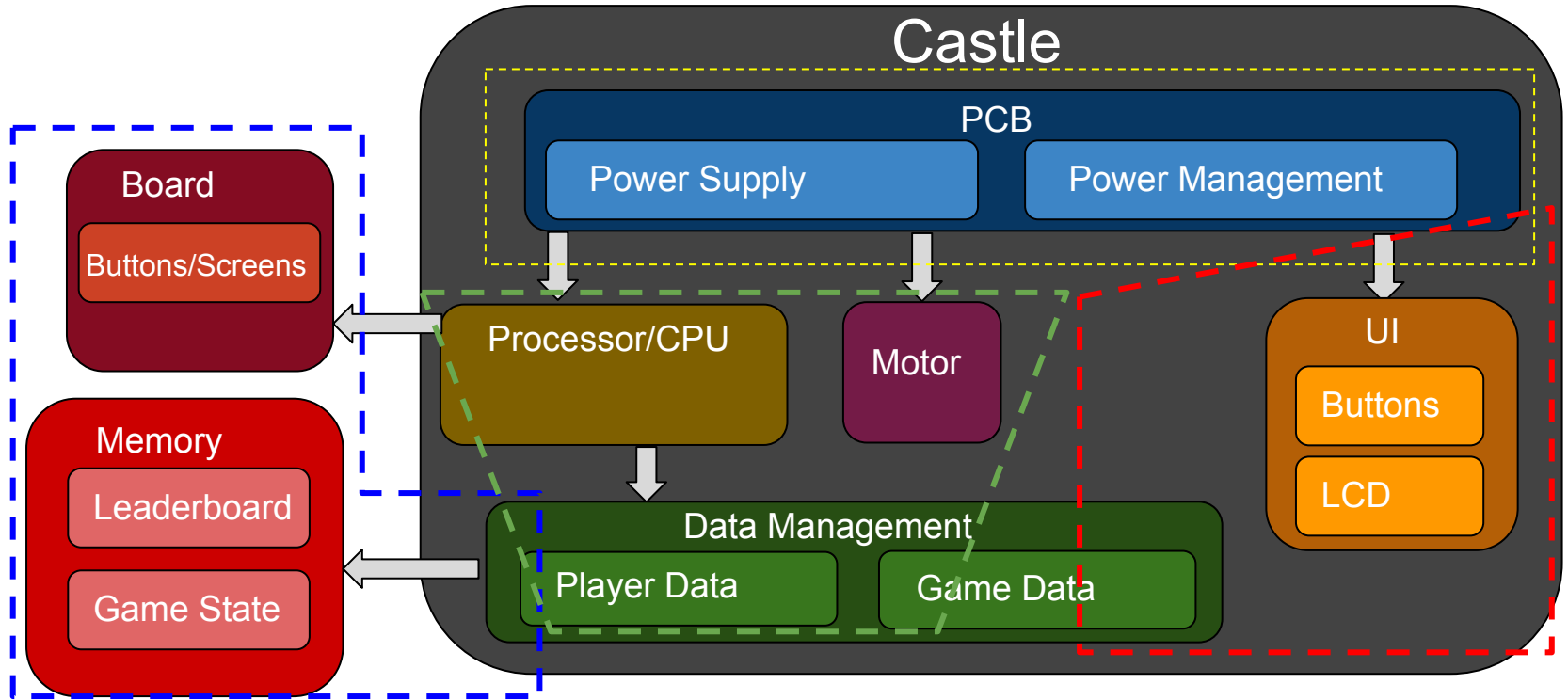
Requirements Analysis: Inputs and Outputs

Inputs

- Power
- Touch Display
- Buttons on board
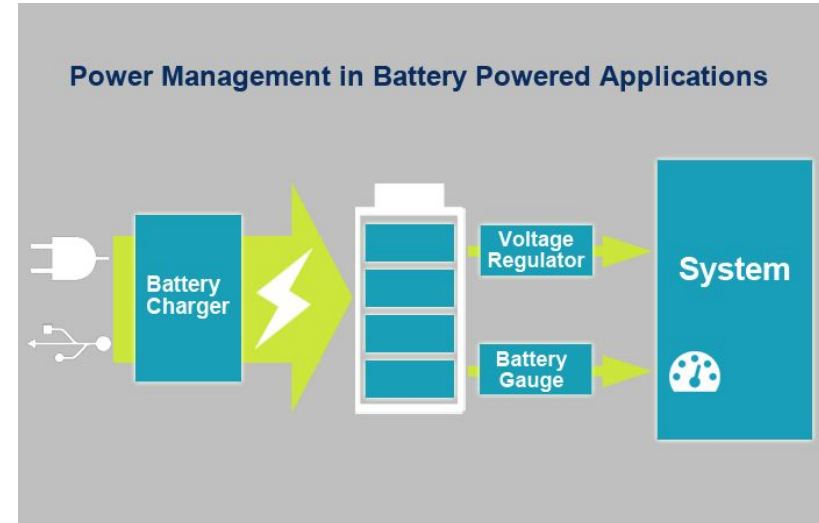
Outputs

- Data via display
- Castle rotation
- Game progression
- Social Development
- FUN

Power Supply and Management

- ## Requirements
  - Various voltage requirements within Castle
    - Motors, Screen, Data processing

- ## Implementation
  - Custom circuit board for power distribution
  - Amplification and attenuation of voltage as needed

Power Management in Battery Powered Applications

Battery Charger
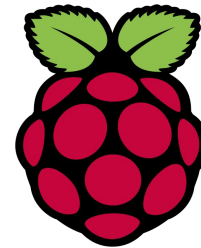Voltage Regulator
Battery Gauge
System

UI

- Requirements
  - Easy to use
  - Natural, intuitive

- Implementation
  - Buttons
  - Touch Display
  - Mini LCD

Gameplay/Processing

- Requirements
  - Fast action
  - Fun gameplay
  - Accurate game information

- Implementation
  - Java, Python
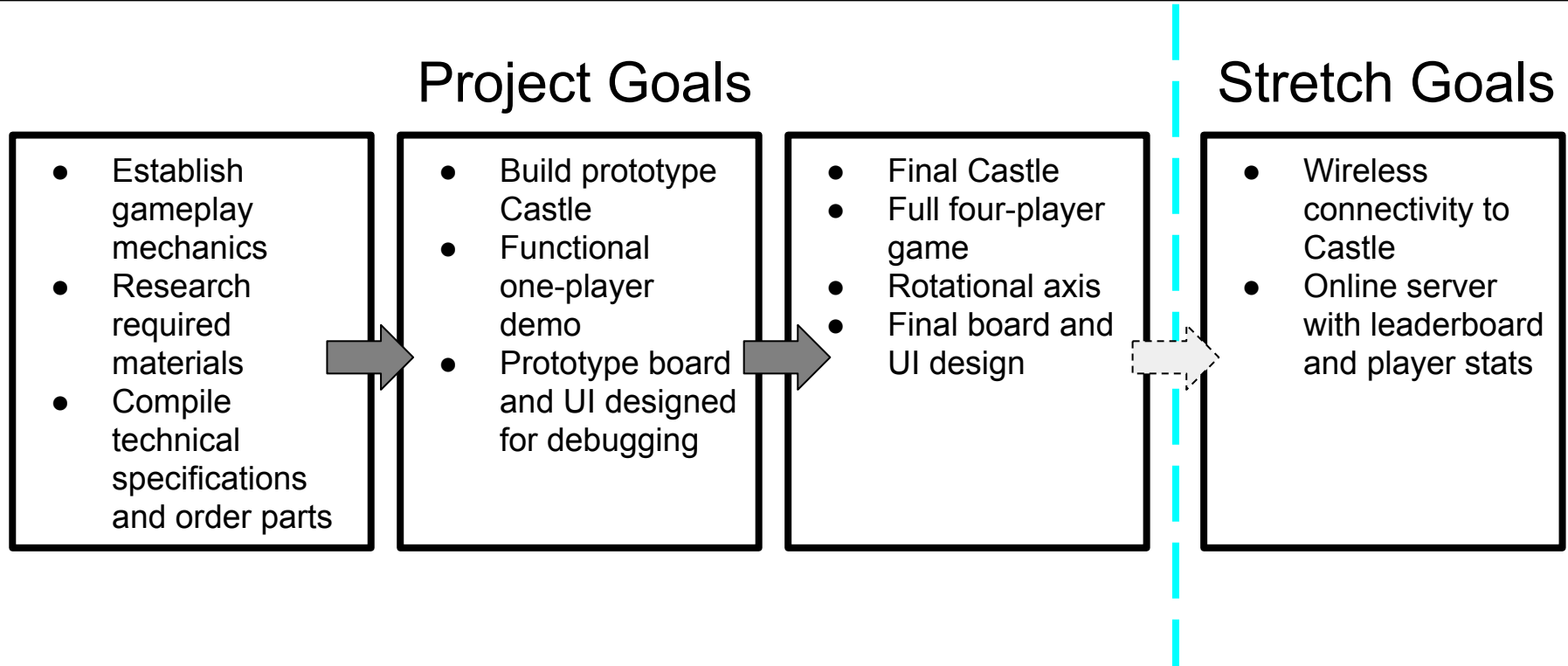 - Raspberry Pi

Memory Management

- Requirements
  - Quick to load game
  - Quick to save game
  - Easy to insert and remove

- Implementation
  - Removable USB drive
  - Designed to look like part of the Castle

Estimated Budget

Raspberry Pi	Free (recycled from previous project)
Castle - 3D printing	< $50
Board	$20
PCB	$20
Touch Screen	~$50
LCD	$25 x 4 = $100
Battery	$15
Memory (USB, SD etc)	$60
Total:	**$315**

Our Development Process

Project Goals

- Establish gameplay mechanics
- Research required materials
- Compile technical specifications and order parts

→

- Build prototype Castle
- Functional one-player demo
- Prototype board and UI designed for debugging

→

- Final Castle
- Full four-player game
- Rotational axis
- Final board and UI design

→

Stretch Goals

- Wireless connectivity to Castle
- Online server with leaderboard and player stats

MDR Deliverables

- Prototype Castle Model
- Prototype game board and UI
- Finalized gameplay
- Code system overview
- PCB design - breadboard mock-up

QUESTIONS?