

# Pitch Pal

## Project Summary

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### Design Team:

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# Design Goals

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- Interactive pitching device
  - Consistently calls balls & strikes, & returns the ball to the pitcher
- Two design models:
  - Little League Trainer:
    - To be used outdoors or in a batting cage
    - Modular
    - 5' X 5' X 3' outer frame
  - Sports Bar Interactive Game:
    - Allows friends to compete against each other
    - Additional aesthetic features

# General Features

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- **Detects balls and strikes**
  - Will detect where the ball is in 9 different detection zones
- **Game Simulation**
  - Simulated innings/players
- **Built in practice routine**
  - Records how many balls and strikes are thrown and success rate
  - Ability to remember past routines
- **Speed Detection**
- **LED Display**
  - Shows where ball crossed zone
- **Speaker Output** (Call out "Ball" and "Strike")

# General Features Cont'd...

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- **Modular** (Little League model)
  - Quick Assembly and Disassembly
- **Portability**
  - Light Weight and Easy to transport
- **Additional Features:**
  - Throwback mechanism - Sold separately from original product

# Design/Marketing Interaction

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- **Marketing**

- Market Surveys
- Different Applications
- Advertising/selling

- **Design**

- Create conceptual product ideas and drawings
- Make it look aesthetically pleasing yet retain function

# Pitch Pal Subgroups...

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- Structure
- Throwback
- Pitch Detection System
- Processing

# Structure

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- **Prototype: (5'x5'x3')**
  - Advantages/Disadvantages
- **Actual Model:**
  - Different Materials
- **Both funnel ball into track for throwback mechanism**
  - Problems with funneling
- **Showstoppers**
  - Weight
  - Compactable





# Throwback

- **Play pitch & catch with a machine is unheard of**
- **Utilize existing tennis ball machine & motor**
- **Consistently return baseballs to the pitcher**
  - Lobs the ball at a 45 degree angle
  - Propels the baseball up to 60 feet (Little League distance = 45')
  - Adjustable to throw grounders instead, for safety concerns
- **Important consideration:** how to get the ball to the mechanism
- **Too expensive:** Alternatives
  - Sold separately: can be easily attached to existing structure
- **Showstoppers:** 1. How to get the ball to the wheel
- 2. Safety
- 3. Easily attachable & detachable, durability, accuracy
- 4. Cost (before decision to sell separately)

# Pitch Detection

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## ■ Optical Detection

- Use of lasers/IR detection systems
- Invisible detection, makes it more realistic

## ■ Mechanical Detection

- Use of Piezo-electric sensors
- Curtain design
- Can absorb the impact force of the ball
- Ability to detect where the ball impacts the plane
- high and outside, strike, low and inside
- Sends a conditioned electric signal to the STAMP II which can be used for a game.
- Showstoppers: Attaching Piezo-electric sensors to the curtain, & durability

# Processing

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- **Stamp II**
  - 16 pin logical operating processor
  - Allows for the implementation of the “interactivity” of the machine
  - Demonstrate the implementation of the detection system
  - Gives ability for pitch pal to have more than one use
- **Games**
  - Simulated Innings
  - Strike Percentage
  - Real Simulated Player Types
  - Real Teams
  - Pitch Placement
- **Showstoppers:**
  - Ability to detect where ball is thrown and display
  - Gaming

# Gaming Flowchart Example



# Schedule

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- Please view overhead



# Questions



- Prove to us that this is not the next revolution in sports...

