



FetchFinder: Fetch Beyond Sight

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Abstract

FetchFinder is dedicated to enhancing playtime for all dogs, especially those who are visually impaired or easily distracted. Our flagship products are balls enabled by radio frequency or Bluetooth connections for users to play sounds when the balls are motionless, ensuring continuous engagement and inclusivity in fetch games. By addressing a significant gap in the pet toy market, FetchFinder's technology makes every game of fetch enjoyable and accessible. Our mission is to improve the quality of life for pets and their owners, fostering stronger bonds through innovative play solutions.

Motivation

Fetch was Dexter and Brittany's favorite game to play together... Until he went blind. Heartbroken by the realization that sight was vital to fetch, the idea of FetchFinder was born.



Current dog toys don't make noise when they are still, reducing the fun and accessibility for distractible or visually impaired dogs

Customer Discovery

- 61%** of dogs favourite game is fetch
- 88%** of owners report their dog loses track of balls
- 93%** of dogs prefer a sound enabled ball
- 95%** of owners would pay \$30+

*Based on over 150 interviews of owners throughout the city of calgary

\$8B

Global Pet Toy Market

\$3.7B

Globl Ball Market

\$3.1B

North American Pet Toy Revenue

Methods and Materials

Mechanical Components

- Outer Layer: Food/Dog safe TPU
- Inner Layer: Nylon
- Electrical Housing: PLA
- Method: 3D printing

Electrical Components

All models

- 900mAh Lithium-Ion battery
- USB-C charger
- epoxy resin filling around components for durability

RF Module

- RF module (~30m range)

Bluetooth Module

- ESP 32 Bluetooth module (~20m range)
- I2S Amplifier

Software Development

- Wireframes and logos created using Canva, Photoshop, DALL-E 2 and Figma
- Model, view, Model View architecture written in React Native using Visual Studio Code and Xcode
- Sound files generated in house to maintain copyright integrity

	Wobble/Wag Giggle	Cheerble	Fetch Finder
Durable	✓	✓	✓
Makes Noise	✓	✗	✓
Electronically Enabled	✗	✓	✓
Suitable for small dogs	✗	✓	✓
Makes Noise When Still	✗	✗	✓
Customizable Noises	✗	✗	✓
Remote Connectivity	✗	✗	✓

Results

Goal: Withstand a bite force of 800 N (study stated that a dogs bite force 400 N was higher than 77% of dogs tested in this study, wanted Factor of safety of 2)

Compression Test

Compressed perpendicular to the threads

- Peak Load = 2.389 kN
- Peak Stress = 7.879 MPa

Compressed along threads

- Peak Load = 2.487 kN
- Peak Stress = 7.703 MPa

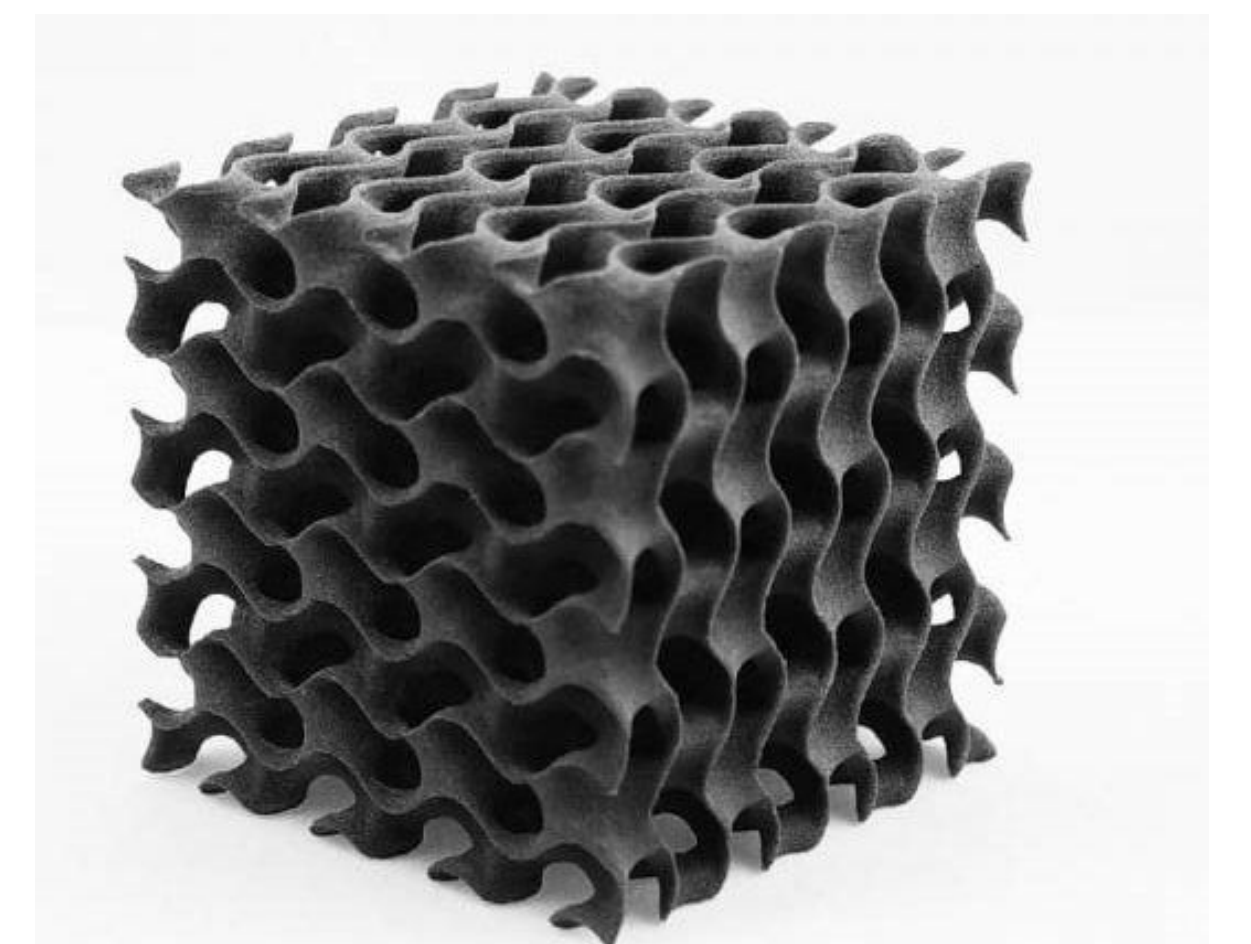


Figure 5. FetchFinder Nylon Infill

BLUETOOTH MODEL MANUFACTURING COSTS TOTAL = \$21.36

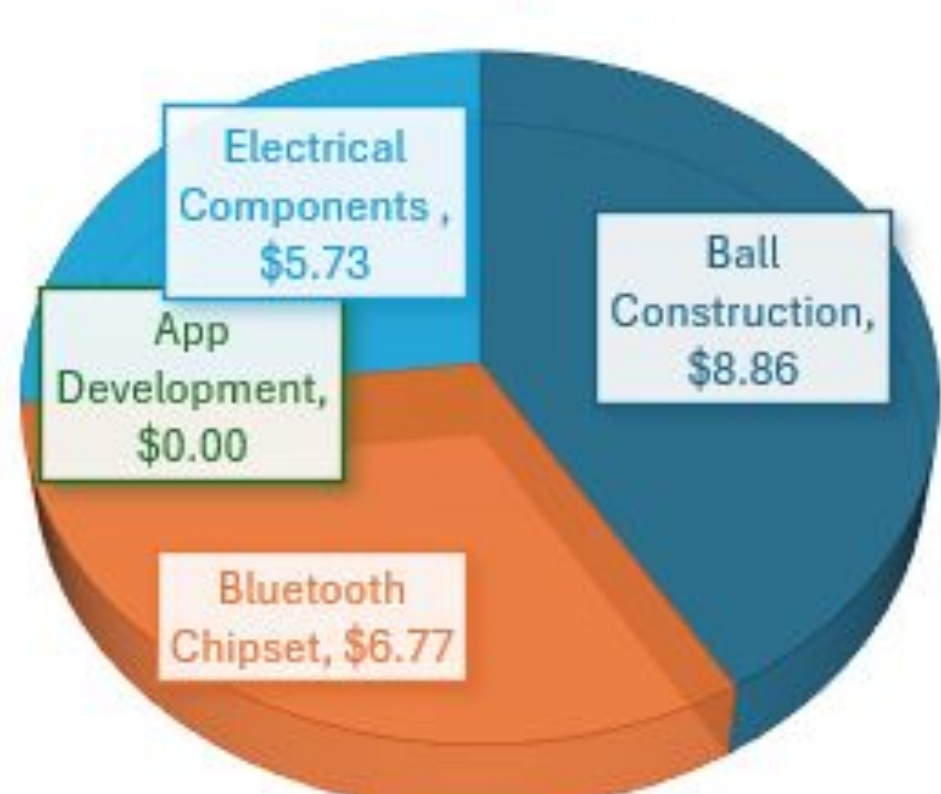


Figure 3. FetchFinder Bluetooth Costs.

RADIO FREQUENCY MODEL MANUFACTURING COSTS TOTAL = \$24.73

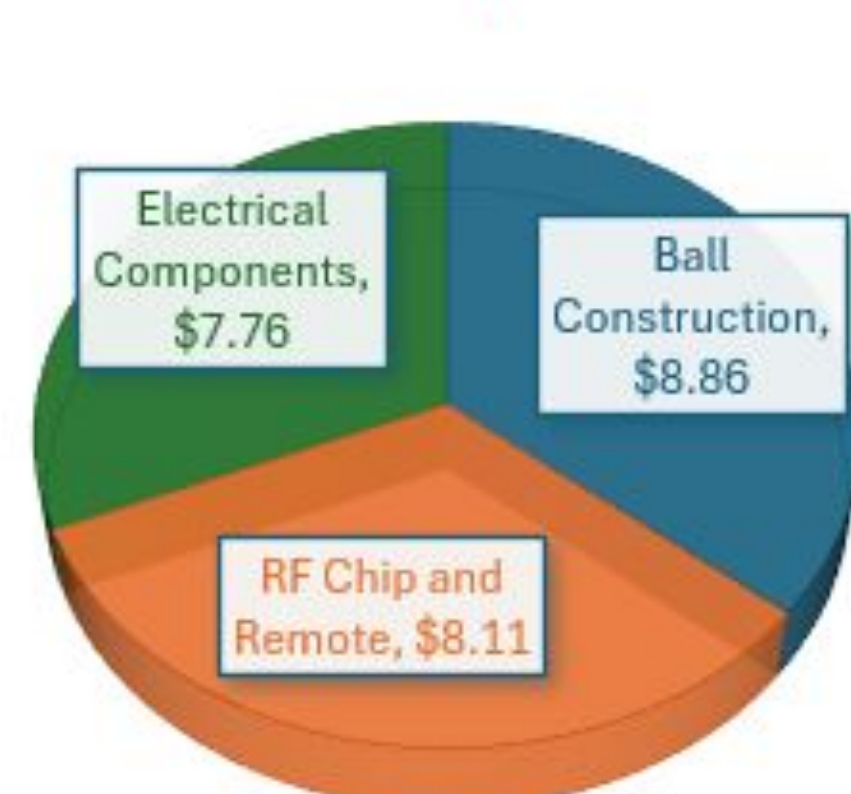


Figure 4. FetchFinder Radio Frequency Costs.

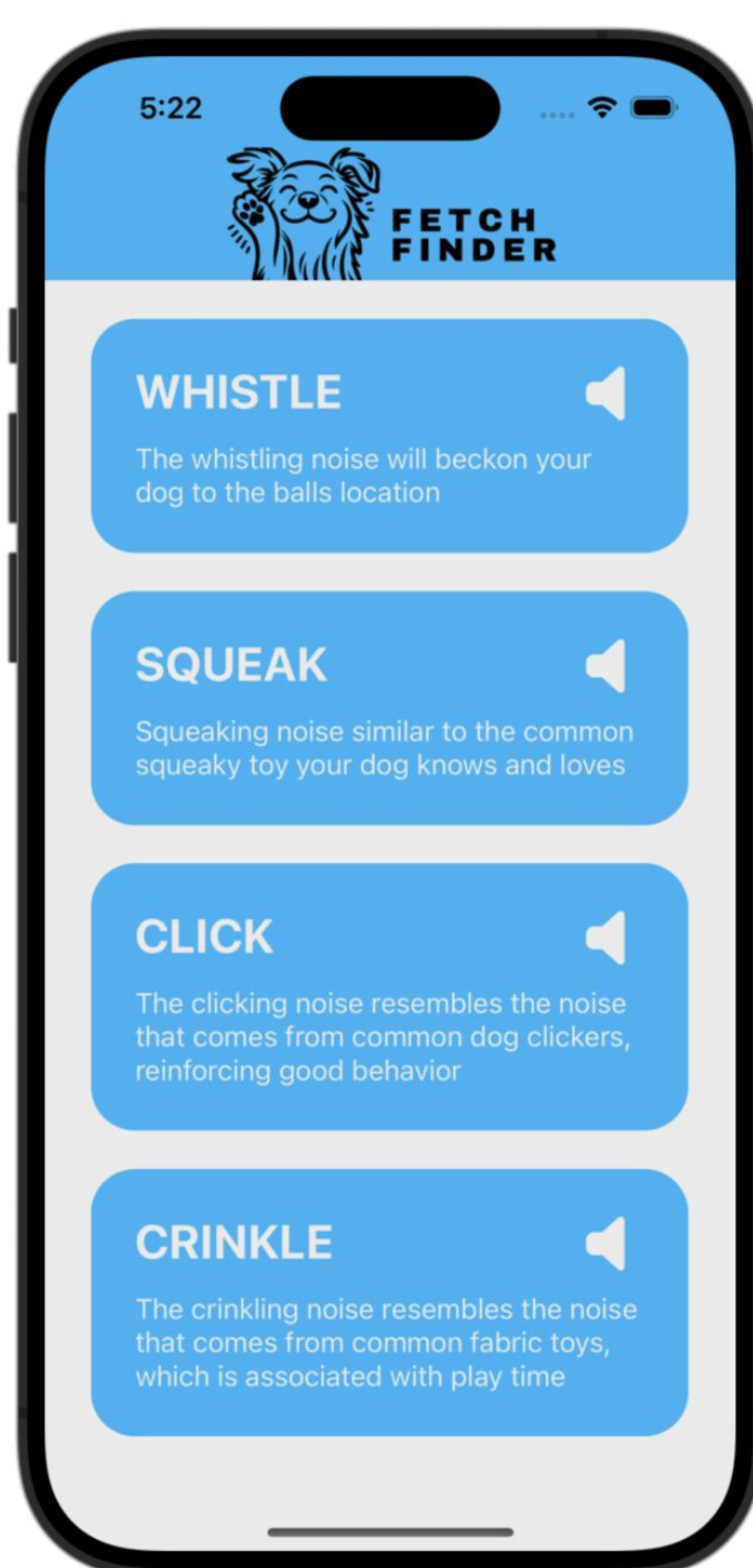


Figure 1. FetchFinder iOS App.



Figure 2. Ball Construction

Next Steps

Manufacturing

- Outsource manufacturing to China
- Outer layer will become natural rubber

Electrical Components

- Custom PCB
- Increased battery life
- Increase range
- Waterproofing

Software Development

- Ability to add custom sounds through FetchFinder App
- Android and iOS apps

References

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