



Graff Golf
2020 Business Forecast

Play. Analyze. Improve.



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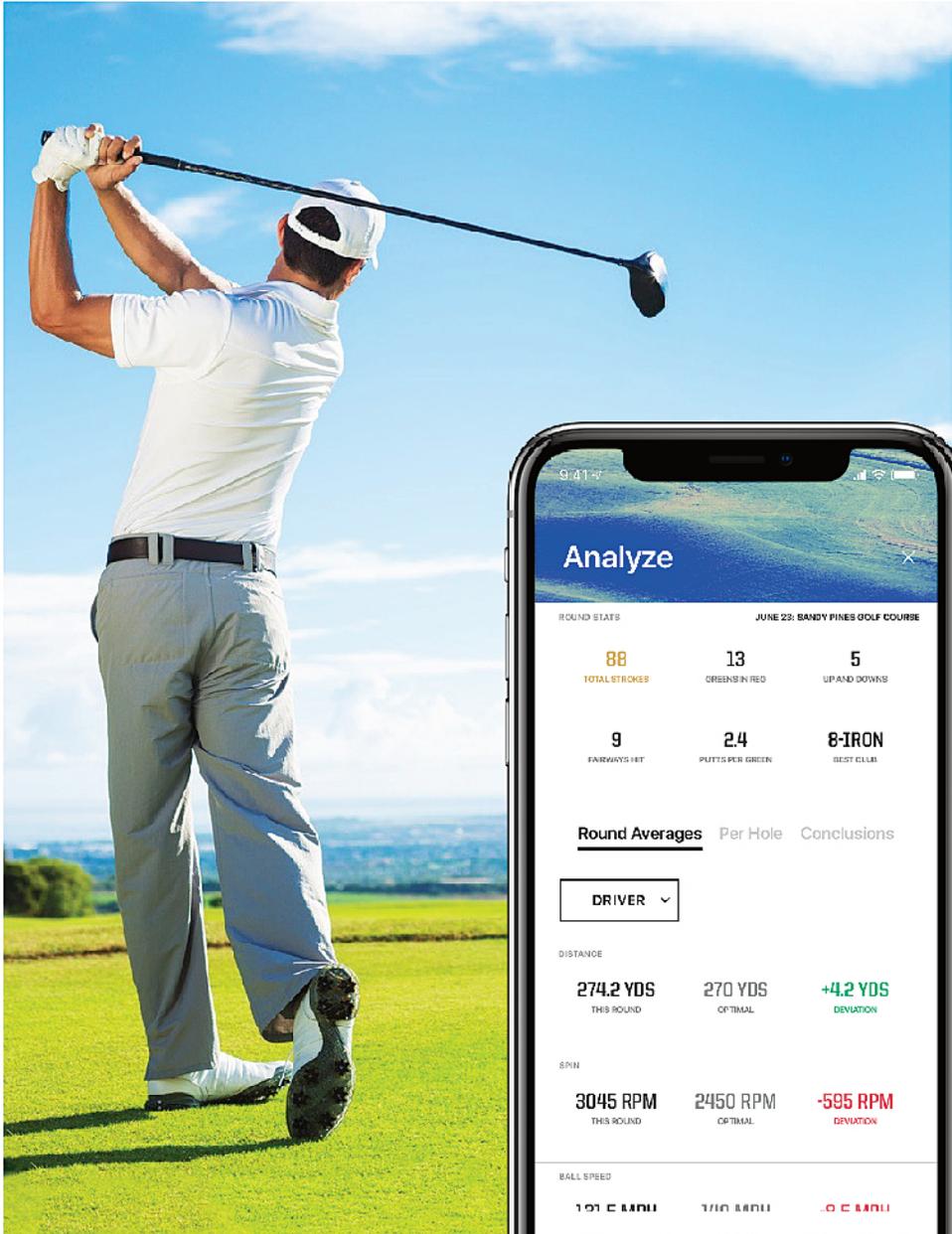


A smart ball & app that enrich your golf experience.

Our performance golf balls are embedded with advanced, proprietary technology that allows every aspect of a round of golf to be tracked:

- Ball Spin
- Ball Velocity
- Total Distance
- Launch Angle
- Ball Location
- Round Score
- Putts Per Hole





Graff collects data from every shot you hit.

When you hit a shot with the Graff smart golf ball, your stats are instantly recorded to the Graff app throughout your round.

You can view per-club statistics as you play, or review cumulative statistics at the end of a round.

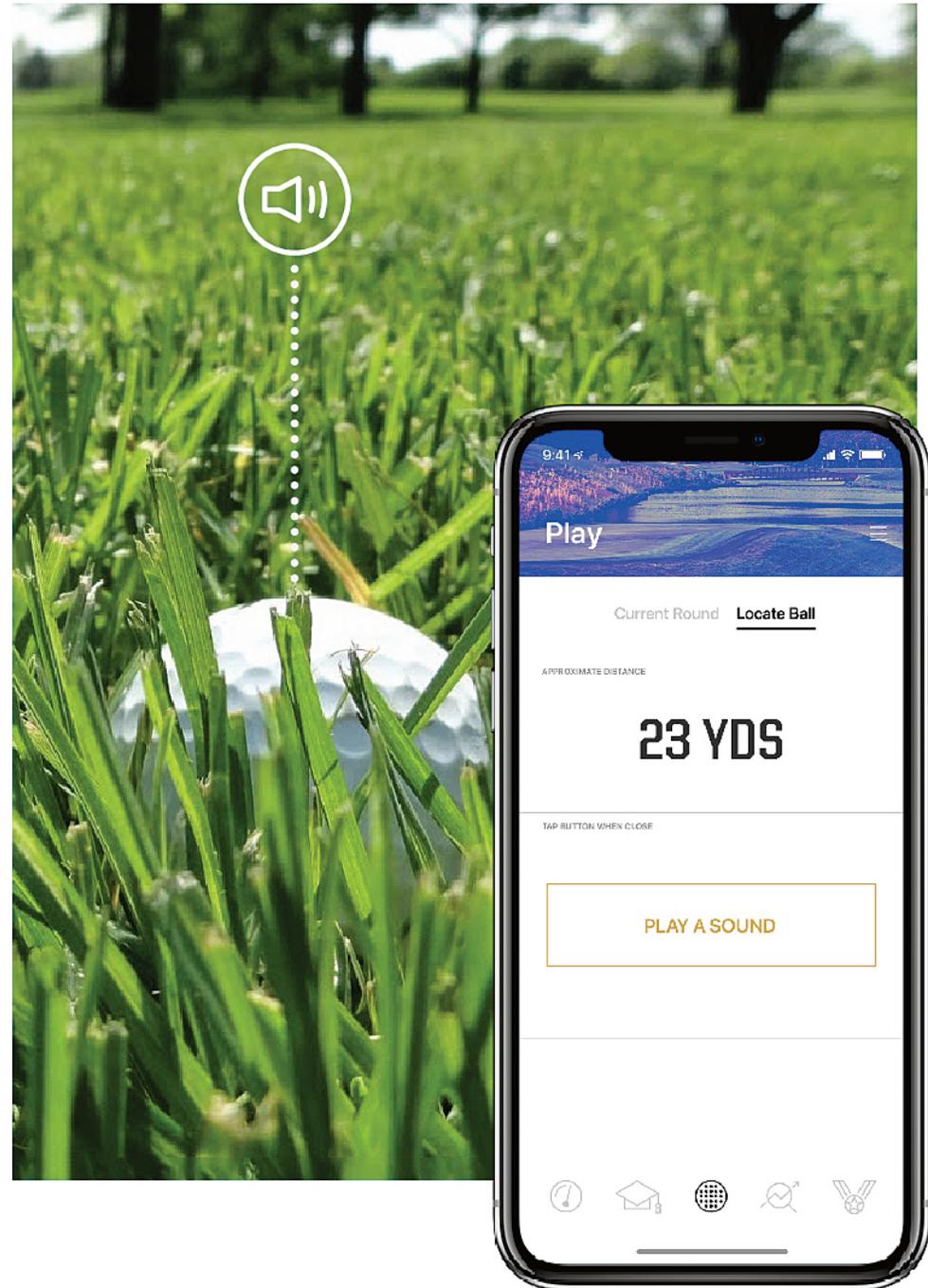
The app offers many dynamic stats which deliver a comprehensive break-down of your golf game.

Locate your ball with ease.

The chips embedded inside our Graff smart golf balls are equipped with Bluetooth™ technology which allows for easy ball location.

By simply tapping the icon within the app, the ball will emit a sound to alert the user of its location.

The search is over—the ball you've been looking for is here.





Your own portable swing analysis station.

Graff has immense potential both on and off the golf course.

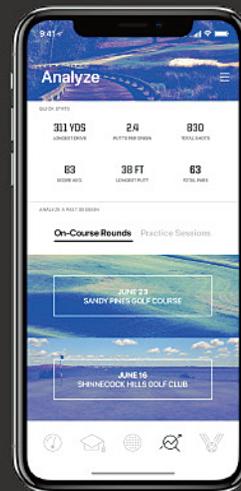
Users can easily use the ball and app in a field/public park or, with the addition of a small net, even use the product in the comfort of their own back yard.

Commercially-available golf simulators cost thousands of dollars. Graff offers a training aid competitive with others on the market at a much greater value.

Our current status.

We are closing in on our seed funding goal as we are finalizing our product development. Here are some recent highlights:

- Created a working prototype
- PCB design in testing phase
- Contract manufacturers chosen
- Got first place at the Johns Hopkins Start-Up Competition
- Raising \$121K in seed round, \$81K already committed



GRAFF
GOLF

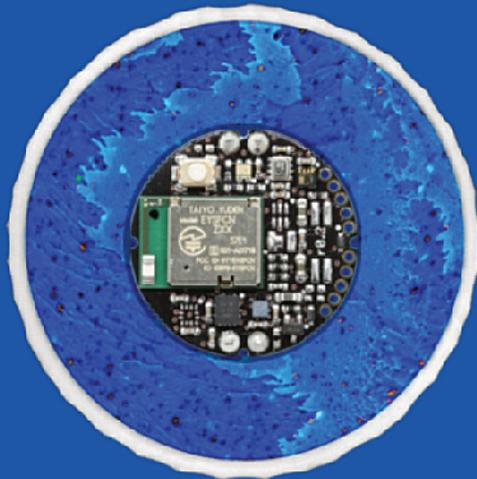


The Problem

Golf is ready for technological innovation—the time is now.

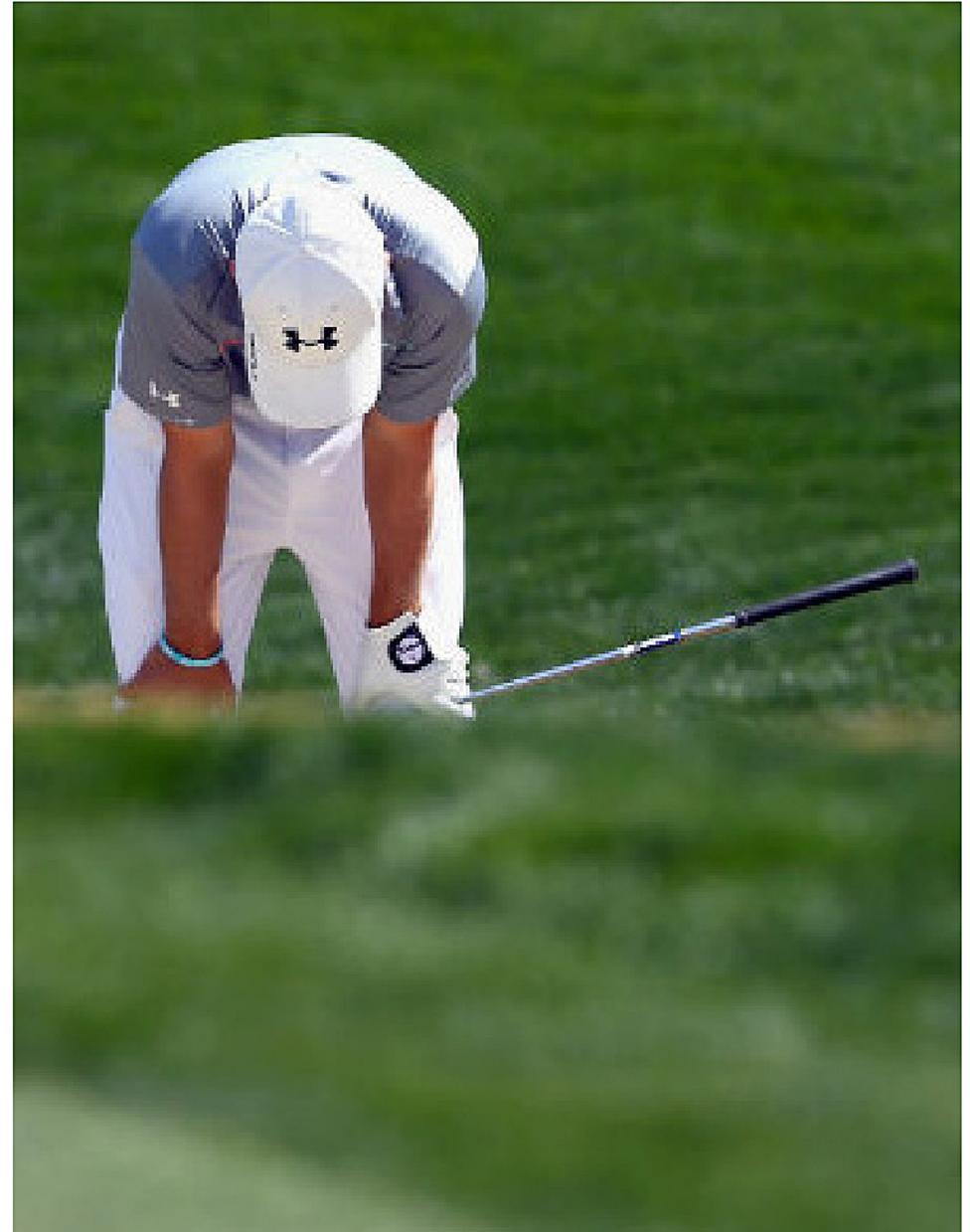
Golf is one of the most popular leisure sports with over 23M participants in the U.S. 8.8M of these participants are considered “avid” golfers—golfers who place high value in their ability to perform and are willing to invest time and money to improve.

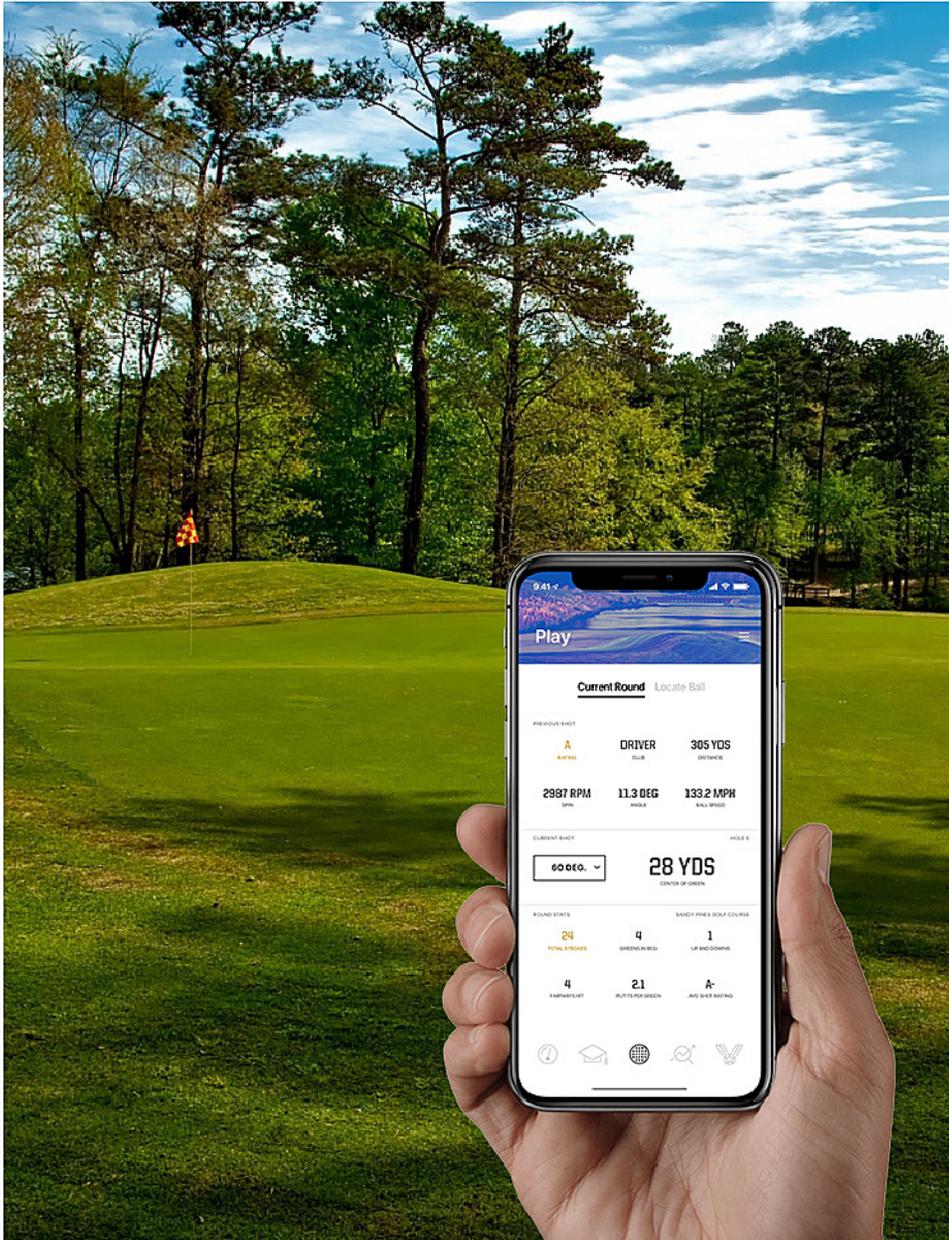
- \$300M worth of golf balls are lost each year—a number that can be drastically reduced with smart ball innovation
- Equipment wholesale sales are over \$2B annually, displaying a strong commitment golfers have to performance gear
- Revenue by courses and country clubs is expected to exceed \$23B by 2020
- 20% increase in junior golf participation since 2011, showing a generational uptick in golf interest



Becoming a better golfer is an inefficient & expensive process.

- Average cost for a 45-minute lesson spans from \$50-\$60
- Pay-to-play model: The median price of one 18-hole round is \$36
- After a round, it's hard to see which portion of your game needs the most work
- The average golfer loses 4 balls per round at an average cost of ~\$3 per ball and spends 20 minutes looking for balls on the course
- Cannot compete directly with others unless you are playing alongside them
- Modern technology is currently not being maximally leveraged to help golfers improve





An imperfect golfer is the perfect Graff golfer.

Golf is a life-long sport—you can always improve. Graff seeks to facilitate the improvement process for a large portion of avid golfers around the world.

- Primary target market are avid golfers (8.8M)
- Golfers ages 25-45 are most likely to integrate technology into their game
- 5.3M in the US in the age group of 25-45



Our Solution



A smart golf ball that is primed for performance.

The Graff smart golf ball is a performance golf ball with embedded electronics. The electronics allow us to grab unique swing data from a golf shot and transport the data to the Graff app.

Our smart golf balls are being manufactured by one of the largest golf ball manufacturers in America. The manufacturer has significant experience in producing golf balls with embedded electronics, and have given us exact specifications in regards to size and weight in order to achieve maximum performance.

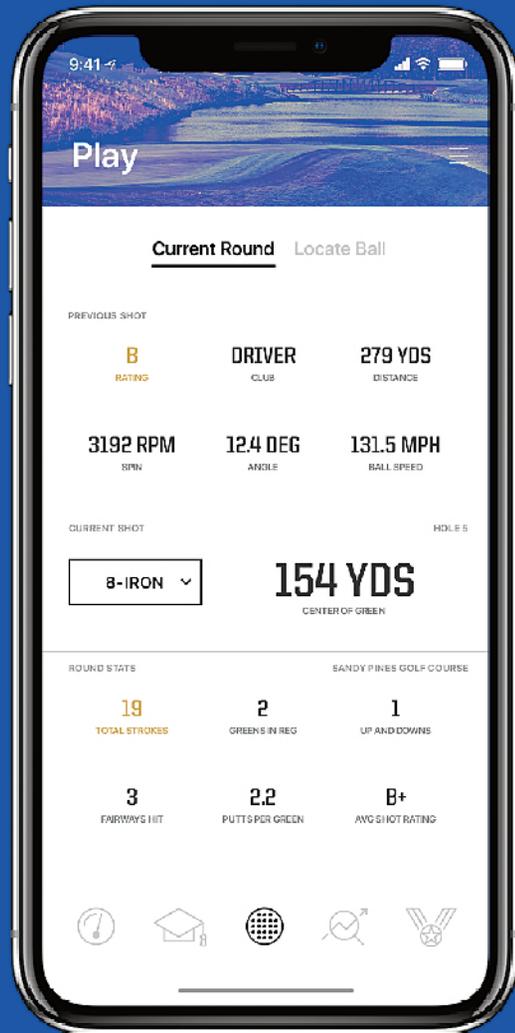
Graff examines your game from the inside out.

A round of golf with Graff produces actionable insights to improving a golfer's game and lowers the cost of each round by reducing the number of lost golf balls.

- See detailed statistics such as ball speed, spin rate, launch angle and putts per hole
- Analyze the best and worst aspects of a round
- Have your round score tracked automatically
- Locate lost golf balls during a round
- Compete with friends and community members by comparing their Graff scores on the app



A more efficient round with the Graff app's **Play** feature.



- Contains stat tracking and ball locating functionality
- Users can see data from previous shots and keep track of club-specific shot analyses throughout the round
- When a ball is lost, the user can trigger a sound via Bluetooth to help find the ball in dense brush or leaves

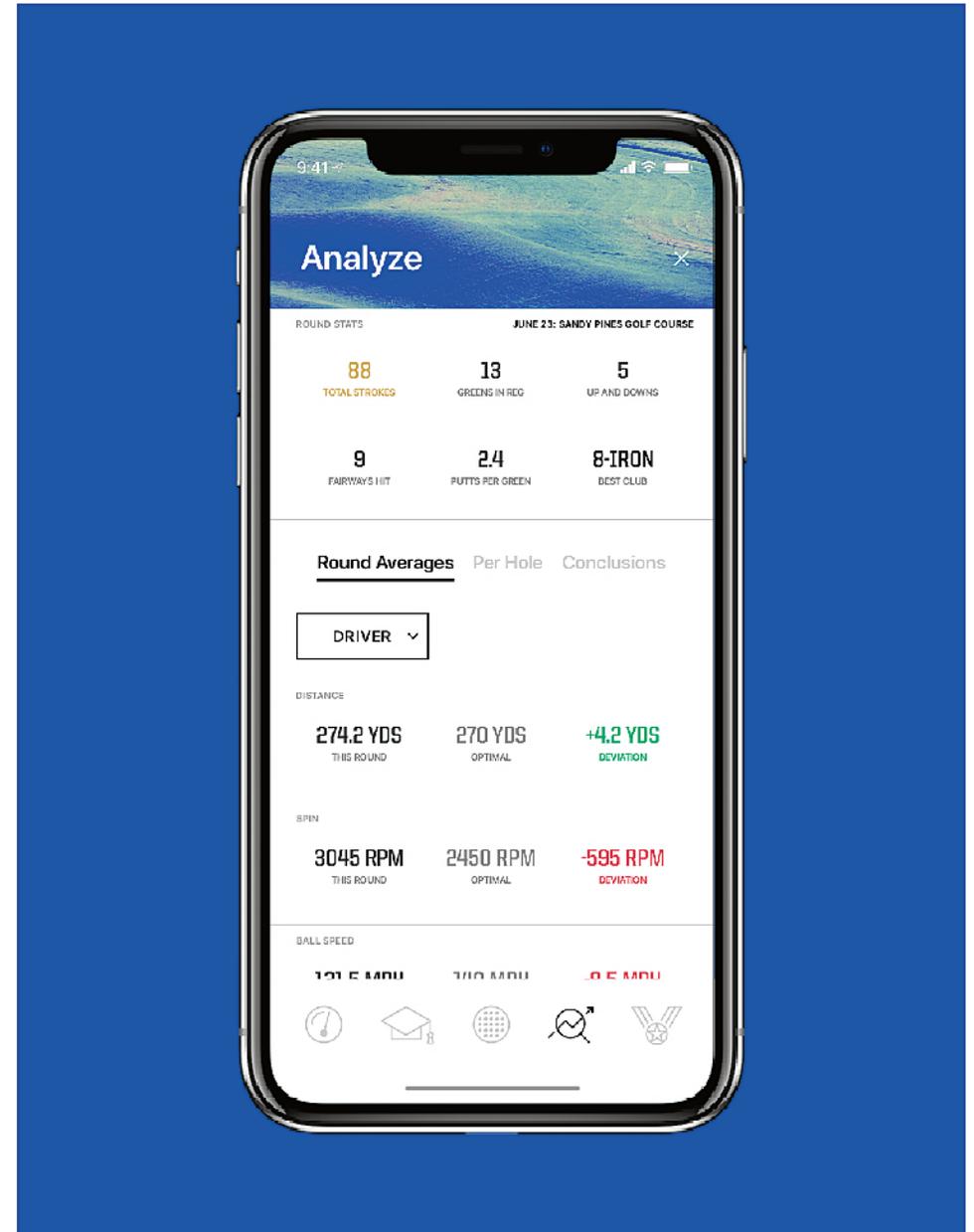
Dive into your post-round stats with the Graff app's **Analyze** feature.

Analyze allows the user to see the data collected during each round and delivers actionable insight to improve a users game.

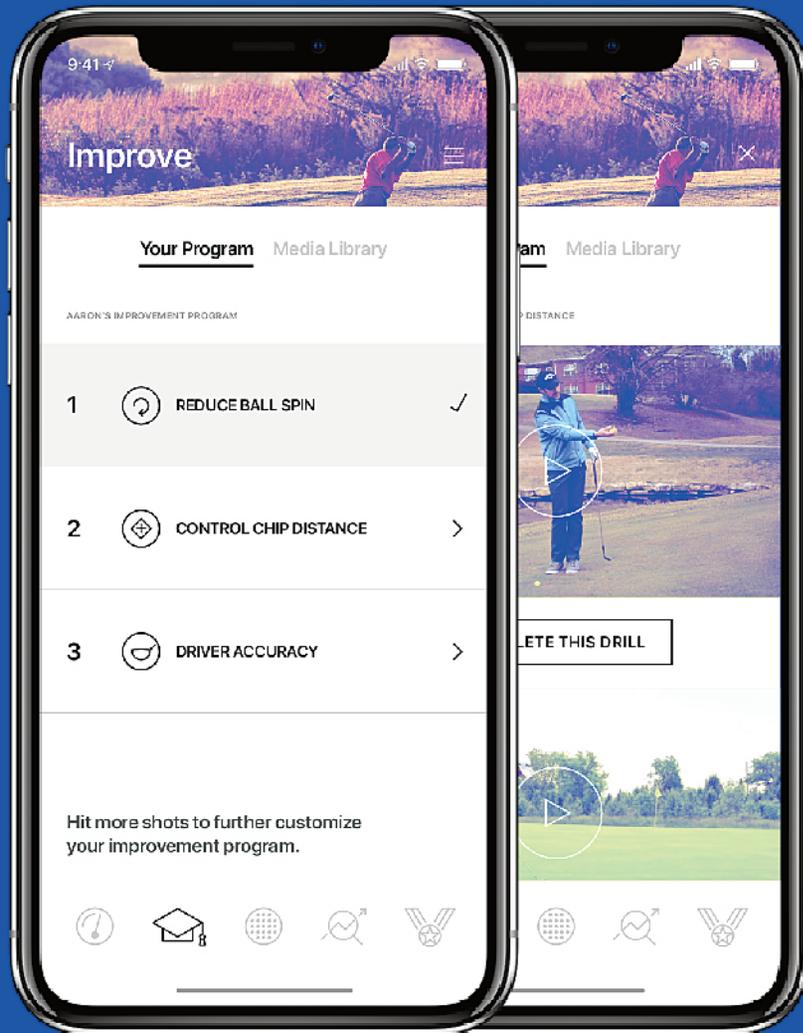
Data collected and reported includes maximum velocity and putts-per-hole, along with more specific analyses such as spin rate and launch angle.

Example post-round insights:

- Least efficient club was 7-iron
- 24% of shots were poor due to high spin rate
- Average launch angle was 20.5° compared to an expected average angle of 16.3°



Refine your game instantly in the **Improve** section.

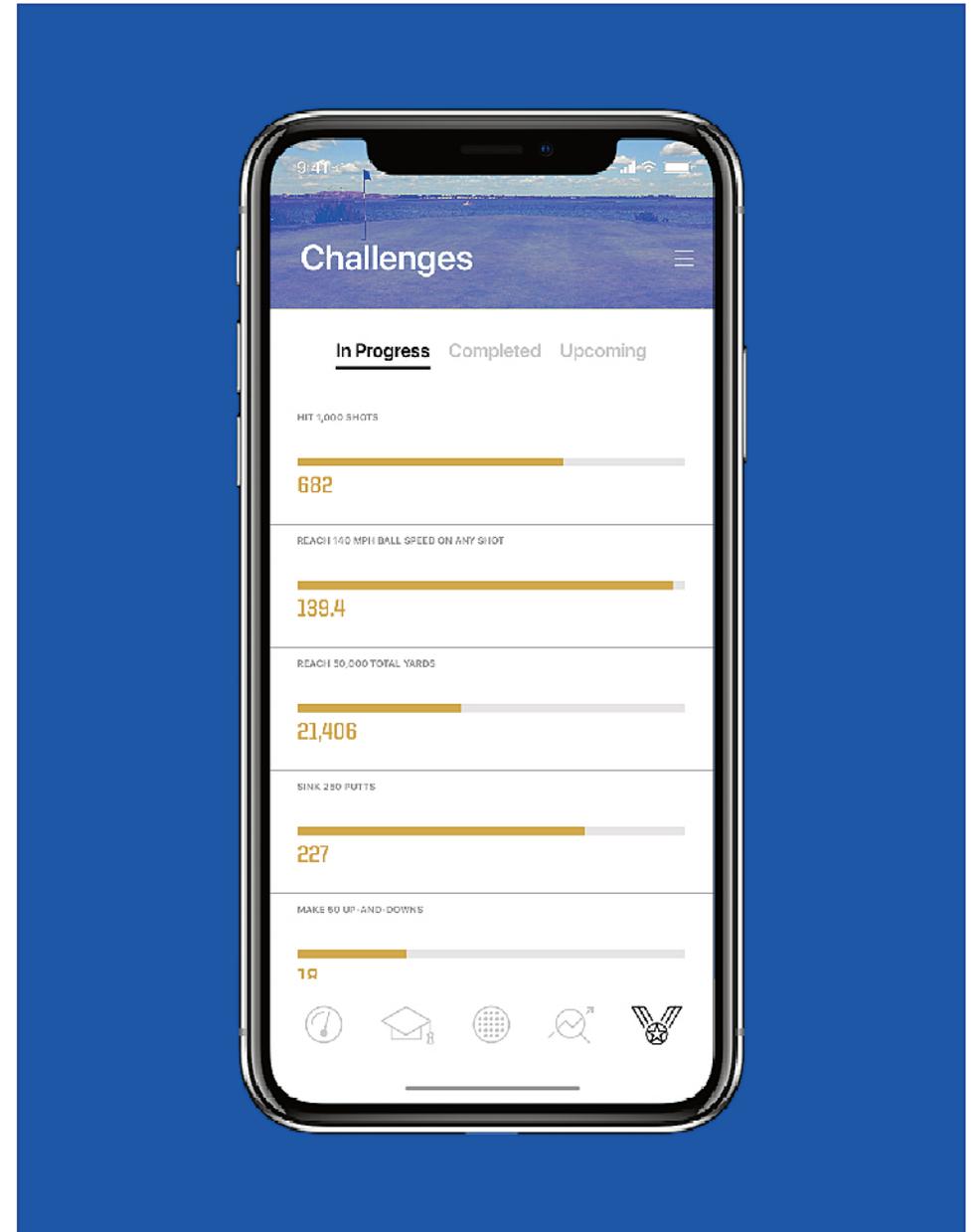


- Analyzes your swing data to pull out potential improvement areas
- Delivers a simple program for working to fix tendencies within the improvement areas
- Section is filled with customized videos and other media curated by golf professional Alex Fortey

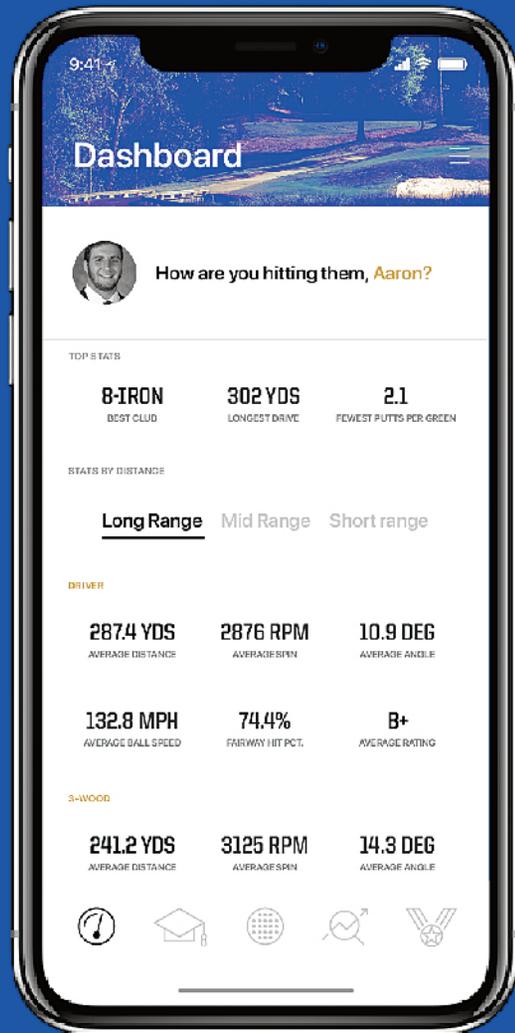
Amplify your golf experience with the Graff app's Challenges feature.

Challenges contains a series of milestones that can be achieved during cumulative round play. Many of the milestones are total-based, so Graff golfers can simply play rounds to unlock these goals.

- Able to display achievements to fellow golfers
- Provides a secondary avenue into app usage beyond analysis—more rooted in social and community interaction
- Graff golfers can potentially win different rewards (i.e. discounts on wholesale products, Graff balls, free app subscription) by completing more in-depth challenges



Upcoming features to be added to the app: **Dashboard & Community.**



Dashboard is essentially a Graff golfer's newsfeed. It contains updates from friends and community members such as scores, stats and completed challenges. There will also be space for cross-promotions and deals on Graff products.

The **Community** feature allows the user to see scores and stats of friends, community members, nearby Graff golfers, and even professionals. Users can also challenge other Graff golfers in specific stat categories such as longest drive and fewest putts.

Future possibilities: Pro Portal & Range Takeover

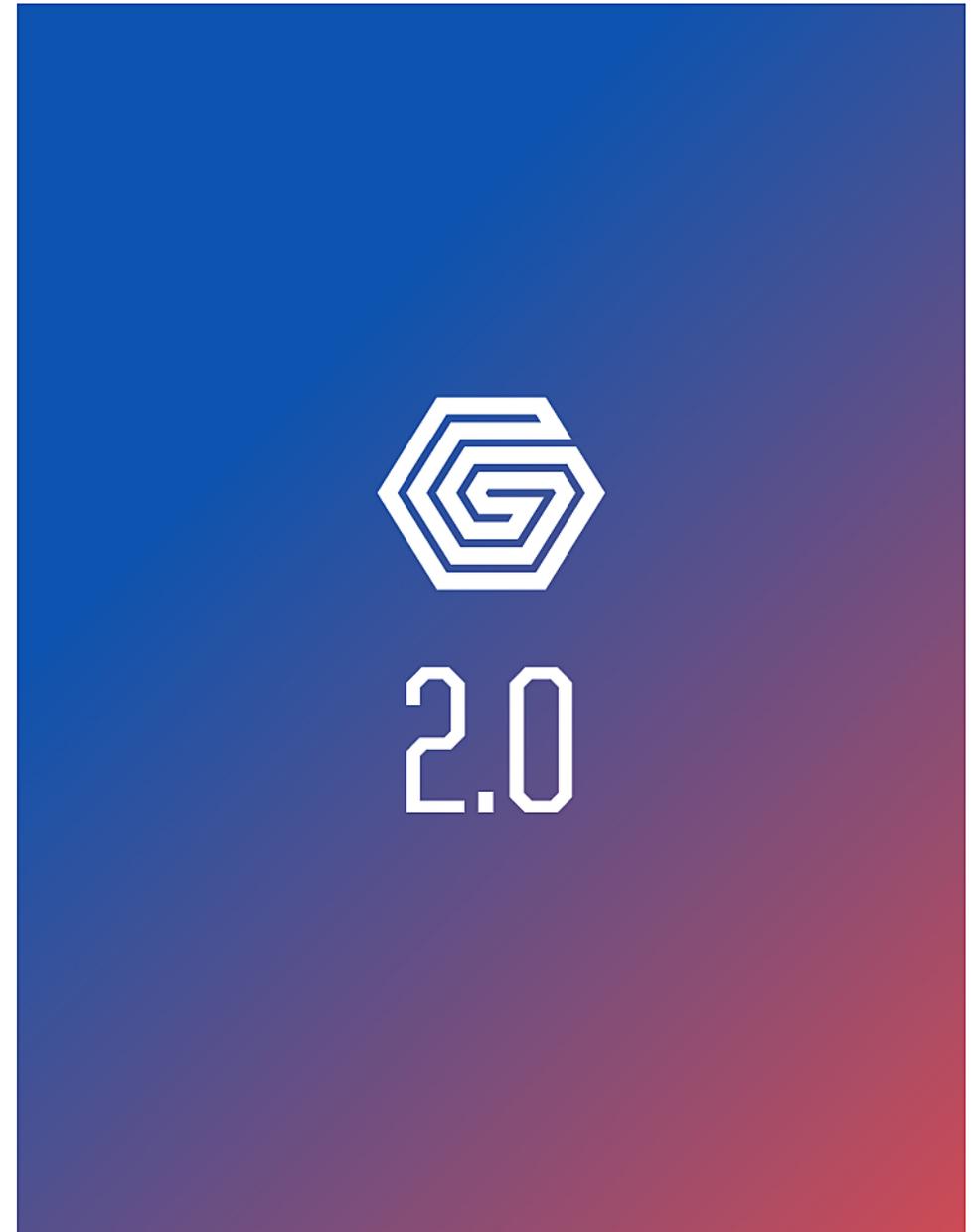
One of the main reasons that our technology is such a strong long-term investment is because its dynamic—which will lead to a multitude of partnership opportunities in the future.

Pro Portal

We're going to give course pros the opportunity to supply Graff smart golf balls to their students. All of the students' shot data will be recorded into a special portion of the app where the pro can analyze each student individually—increasing the effectiveness of a lesson for courses that may not have a Trackman or comparable technology available.

Range Takeover

At select course/ranges we'll replace regular range balls with Graff Golf balls to give golfers on the range actual shot data and feedback.





Our Business

Premium	YEARLY
\$199 /YEAR	<ul style="list-style-type: none"> • FULL ACCESS TO APP DIAGNOSTICS • 6 BALLS INCLUDED
Committed	<small>MOST POPULAR!</small> MONTHLY
\$19 /MONTH	<ul style="list-style-type: none"> • FULL ACCESS TO APP DIAGNOSTICS • 3 BALLS INCLUDED
Trial	PAY AS YOU GO
\$15 ONE-TIME PAYMENT	<ul style="list-style-type: none"> • LIMITED ACCESS TO APP DIAGNOSTICS • 3 BALLS INCLUDED

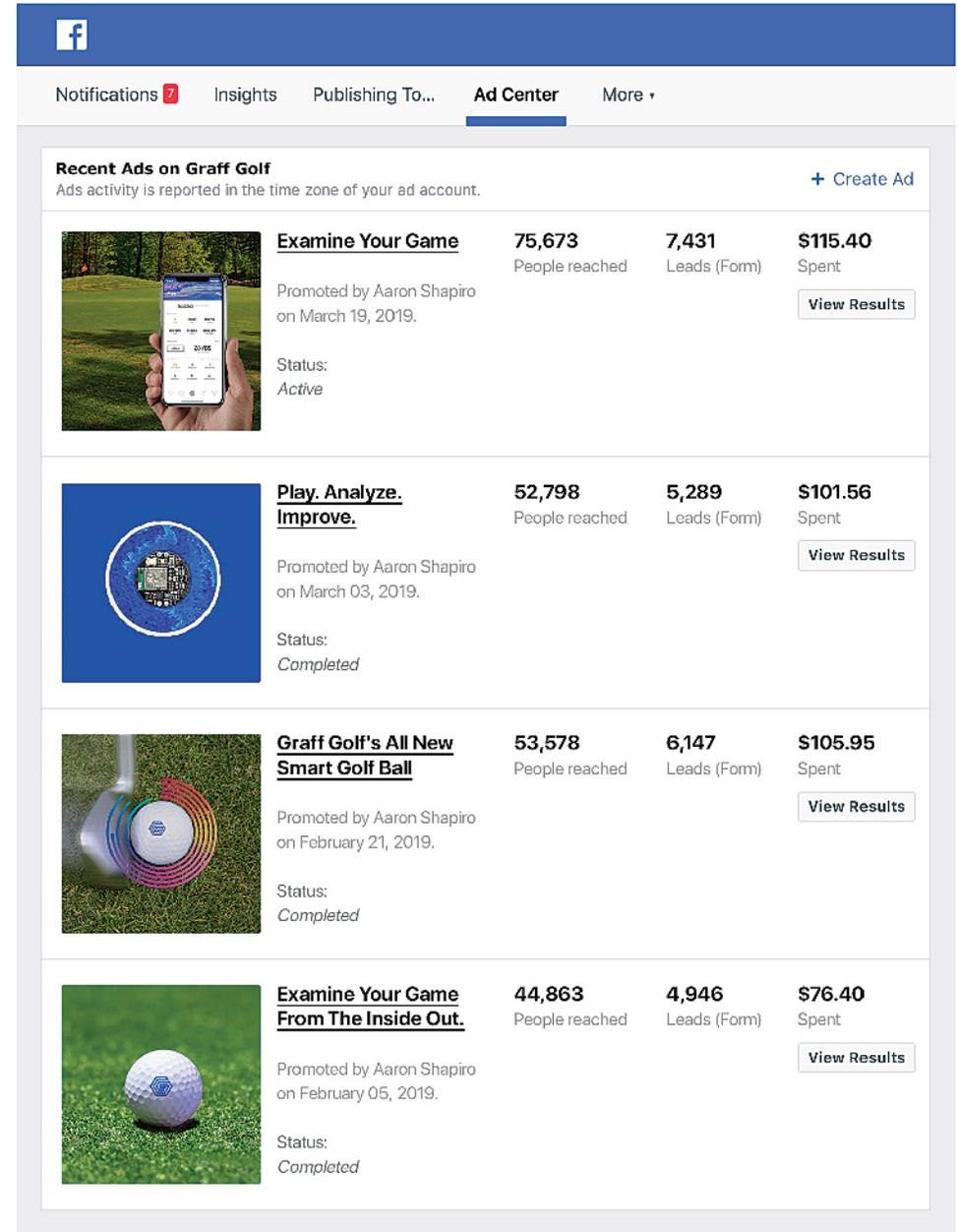
Our business model.

- Main revenue stream will be a subscription model for premium users
- Secondary revenue stream is ball sales —margins from ball sales will grow as production rates increase
- The third revenue stream is from advertisements to free users on the Graff app

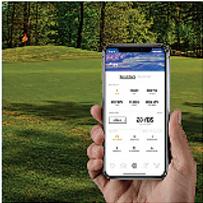
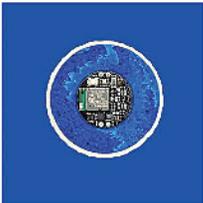
Our go-to-market strategy.

We have the pieces in place to hit the ground running once we secure our patent and seed money.

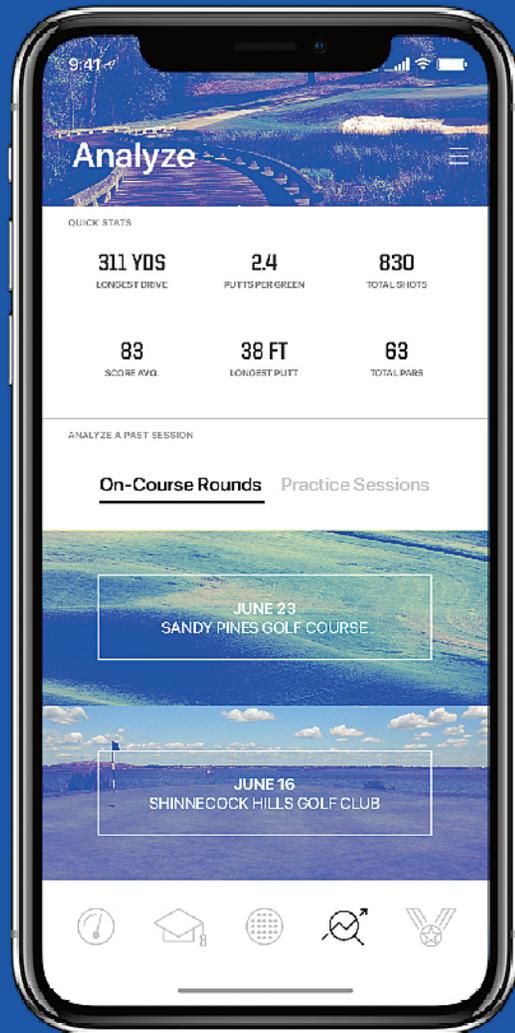
- Planning an initial launch by this December
- Majority of the advertisement budget will be on Facebook and Instagram ads to highly focused target markets to achieve the highest conversion rate
- Free subscriptions for highly influential golf pros and bloggers
- Utilize retargeting on Google for efficient demograph identification
- Produce series of 15-second intriguing videos to drive customers to Graff Golf website



The screenshot displays the Facebook Ad Center interface for the account 'Graff Golf'. It shows a list of four recent advertisements with their respective performance metrics and status.

Ad Image	Ad Title	People Reached	Leads (Form)	Spent	Status
	Examine Your Game Promoted by Aaron Shapiro on March 19, 2019. Status: <i>Active</i>	75,673	7,431	\$115.40	Active
	Play. Analyze. Improve. Promoted by Aaron Shapiro on March 03, 2019. Status: <i>Completed</i>	52,798	5,289	\$101.56	Completed
	Graff Golf's All New Smart Golf Ball Promoted by Aaron Shapiro on February 21, 2019. Status: <i>Completed</i>	53,578	6,147	\$105.95	Completed
	Examine Your Game From The Inside Out. Promoted by Aaron Shapiro on February 05, 2019. Status: <i>Completed</i>	44,863	4,946	\$76.40	Completed

A better golf experience.



Traditional golf experience:

- 50 balls per year: ~\$250
- \$100s spent on lessons and at the range
- More time wasted with minimal & inefficient improvement

The Graff Golf experience:

- ~\$75 balls/year + \$200 subscription = \$275 annually
- Actionable data and feedback from each round of golf
- Data collected and stored in app can be used to improve more efficiently



Our Team

Team Graff



Aaron Shapiro
CEO

Aaron's a student-Athlete at Johns Hopkins University pursuing a degree in Economics. He began pursuing the development of a smart golf ball in 2012.



Mike Eberle
CTO

Mike's a student-Athlete at Johns Hopkins University pursuing a degree in Computer Science. He is experienced in full-stack development.



Patrick Kelly
Head of Product

Patrick's a student-Athlete at Johns Hopkins University pursuing a degree in Electrical Engineering. He is experienced in PCB development.



Rowen Frazer
Head of Design

Rowen is a design director with 12 years of experience in the branding and marketing space. He worked at Ogilvy and Collins prior to starting his own branding operation, Frazer&Co.



Alex Fortey
Head of Golf

Alex Fortey is a professional golfer, coach, entrepreneur and founder of The Art of Simple Golf. From juniors to professionals, college players to weekend warriors—Alex has worked with some of the finest golfing brains in the world.

Graff Advisors



Lawrence Aronhime
Professor

Lawrence is a professor at Johns Hopkins that has years of financial experience as well as growing multiples ventures himself.



Kevin Carter
FastForward

Kevin is head of student ventures at FastForward U. He provides extreme value and resources to the Graff Team.



Chris Savarese
TopGolf

Chris Savarese was the CEO and founder of RadarGolf, the first company to embed electronics inside of a golf ball. RadarGolf was acquired TopGolf.



Chris Jeffers
Lawyer at Mintz

Chris has industry experience in technical, business and legal roles, together with his law firm experience in intellectual property and corporate matters.

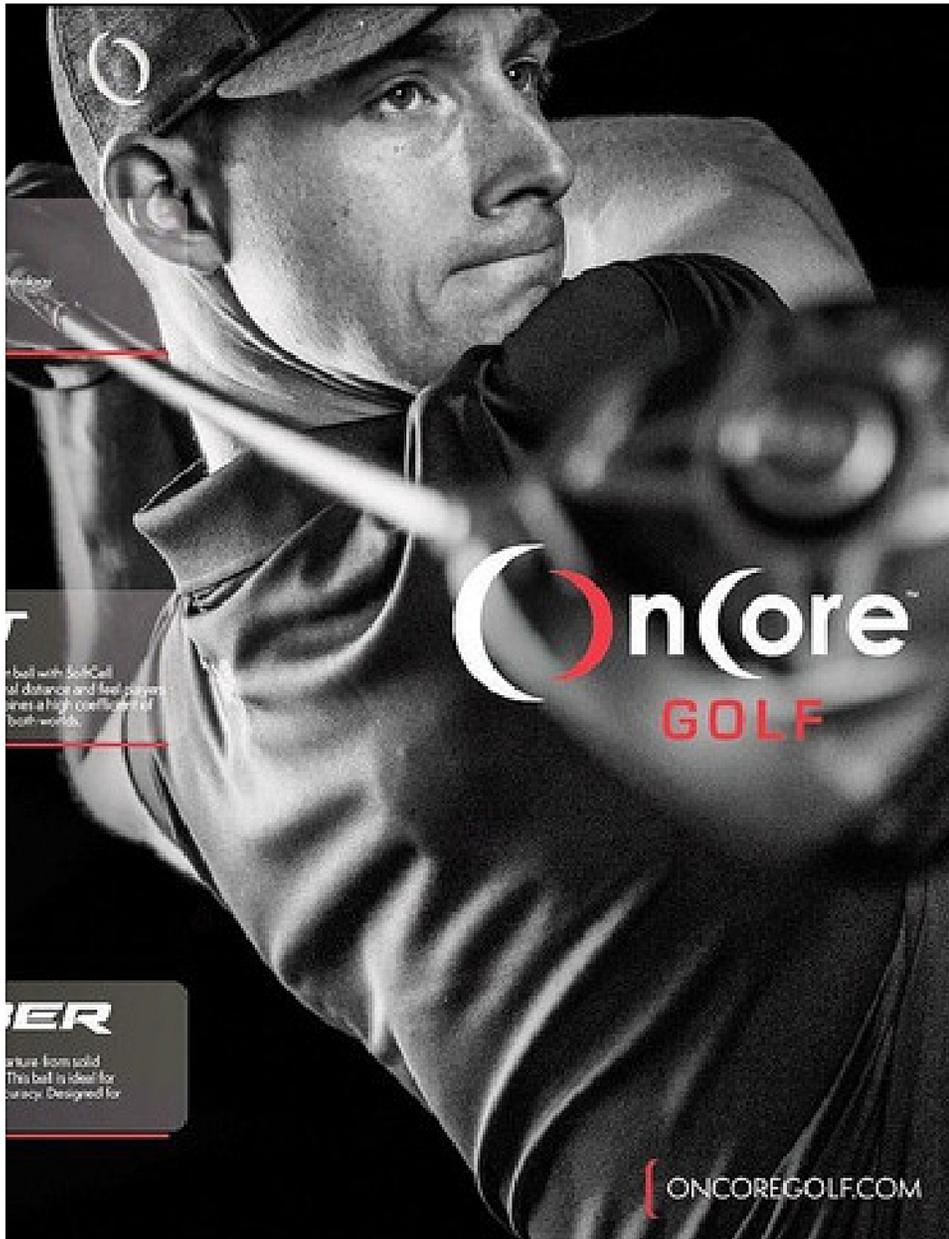


Rob Eberle
Advisor

Rob is a seasoned and accomplished technology investor and executive and an unaccomplished but avid golfer.



Our Competitors



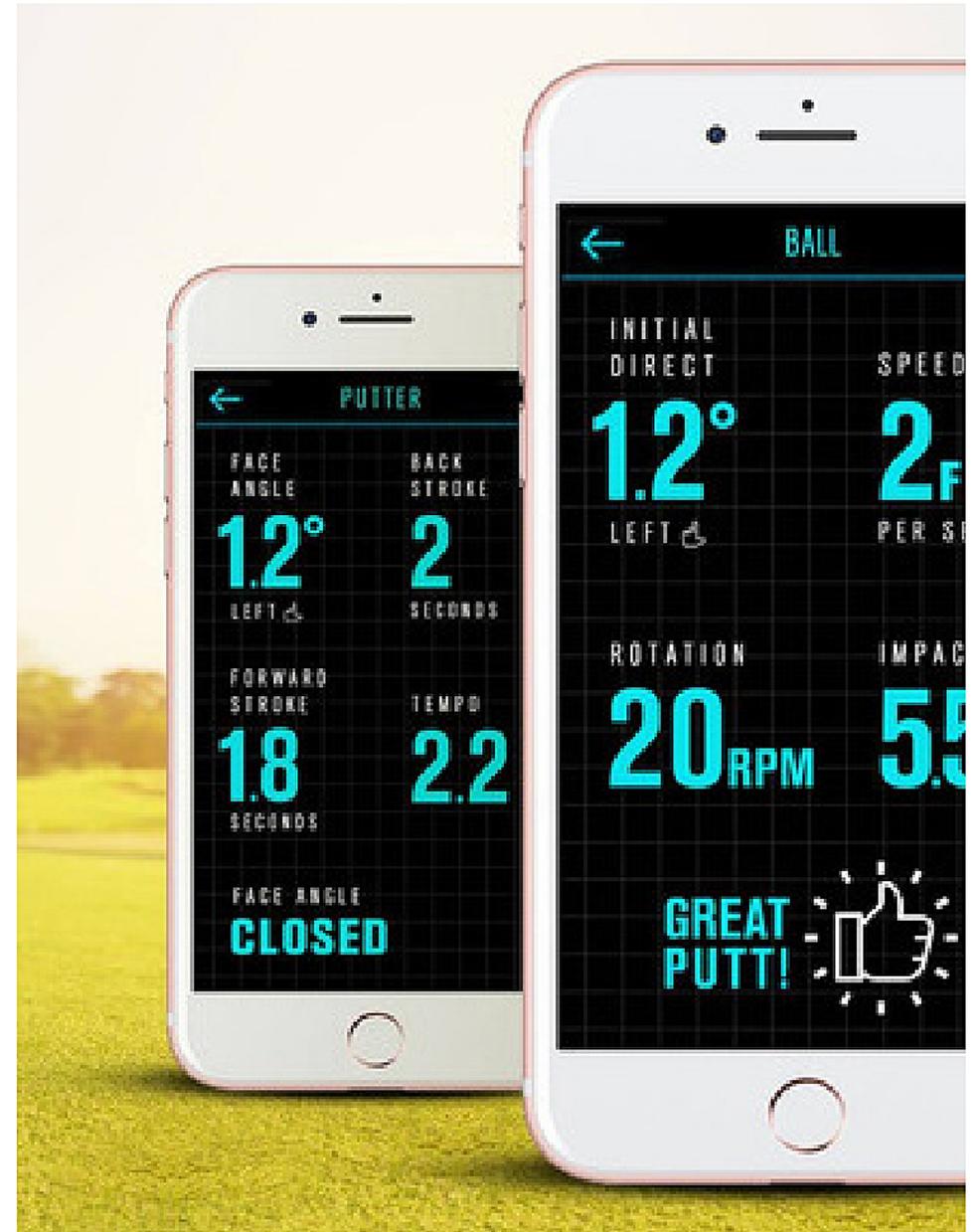
OnCore Golf

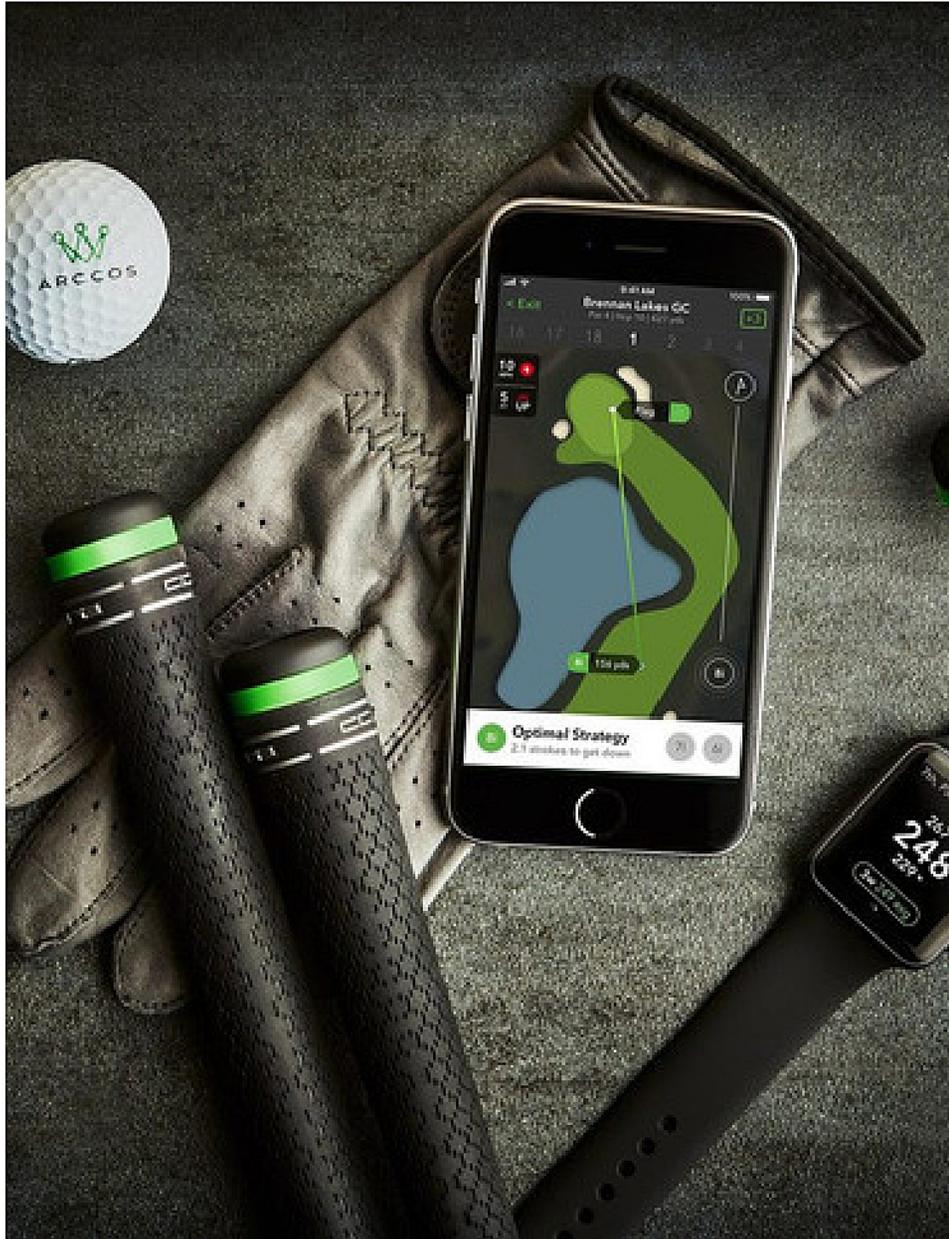
- Premium, high-performance golf balls for all skill levels using cutting edge golf technology
- Small team that currently offers a line of standard golf balls
- Crowdfunded \$130k in December of 2017 to create the GENiUS ball—a PCB-embedded smart ball
- Because of their success in standard ball sales, OnCore has not chosen to actively focus on the GENiUS ball

Coach Labs

Coach Labs produces a line of IoT products for golfers to improve their game. Their current product line consists of:

- GEN i1: A smart golf ball that can be used only for putting (\$139)
- DuoTrac 3-sensor system: A pack of sensors that the golfer wears to gather analytics on their swing motion (\$149)
- GEN i2: A golf simulation net (\$299)
- "The Gen i1 smart golf ball sets up quickly but is not great to use. Limited actionable data."
—Plugged In Golf





Game Golf & Arccos

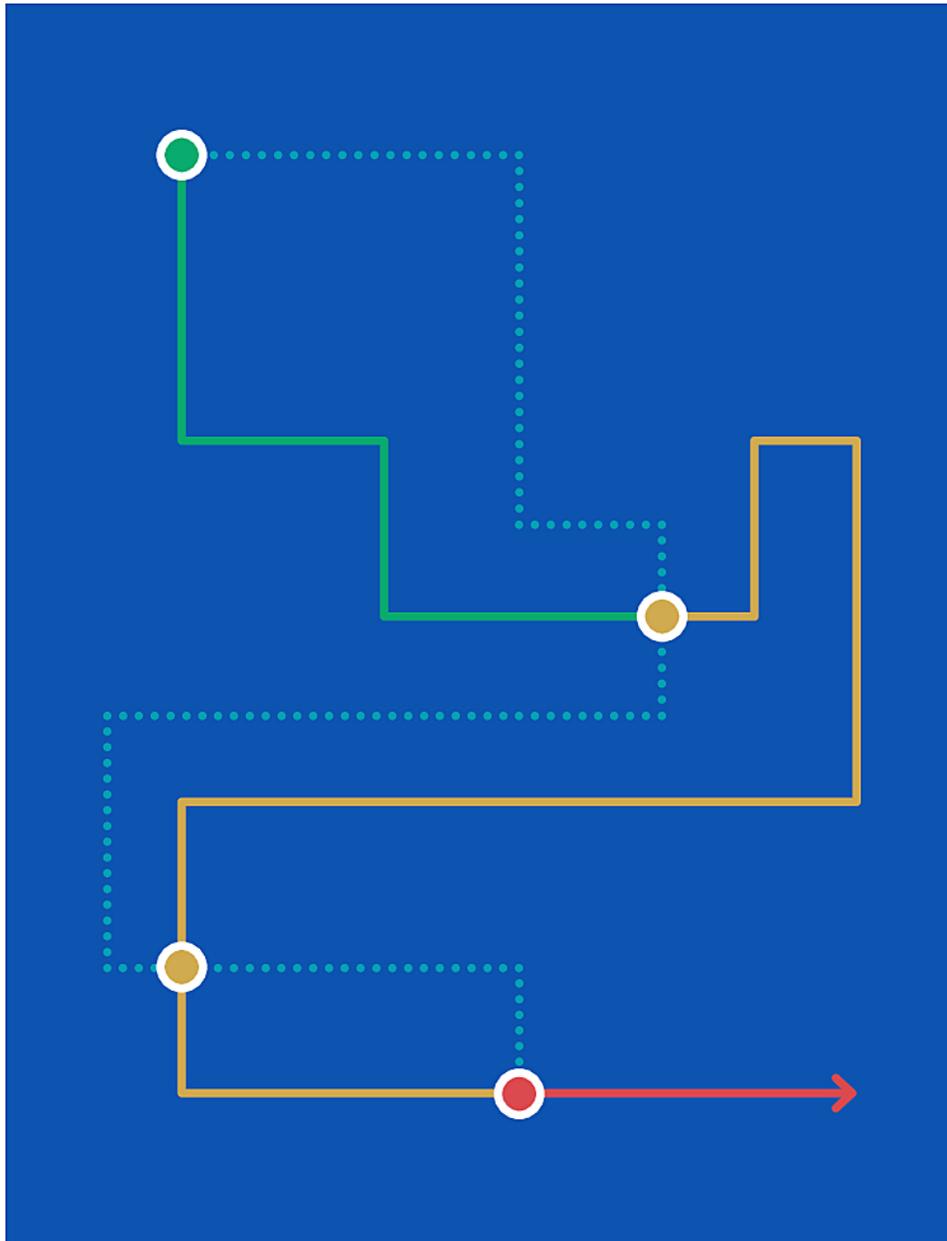
Game Golf (retail \$199) and Arccos (retail \$250) both produce smart clubs to collect data about a round of golf. While both companies have created a user-friendly platform, there is significantly less actionable data gathered from smart clubs.

- High up-front costs associated with both systems
- The system is not seamlessly integrated into a golfer's round—they must tap their phone before every shot
- These products report derivative information such as "greens hit in regulation"—a result of shot quality, but with no deeper analysis



Our Funding

Development roadmap.



Hardware

- Finalize PCB Components
- Order Components
- PCB Lead Time
- Find new magnet sensor
- Electronics testing
- Heat testing
- Impact testing
- Redesign Final PCB
- PCB Lead Time
- Follow Up Testing
- Manufacturer Lead Time
- Test Final Ball

Software

- User Stories /Flow Design
- Updated UI
- Backend Design
- Backend Development
- Web App Development
- Firmware Development
- Mobile App Frontend

The future of Graff.

Golf is a game where players can truly benefit from the statistics we're able to deliver to them by outfitting a performance ball with our technology.

There are other sports that have immense potential with our technology. Other sports considered for future product development are:

- Baseball
- Softball
- Soccer
- Tennis





Contact Us



Let's talk more.

This presentation deck only scratches the surface of what we at Graff Golf believe to be an exciting new foray into golf innovation and technology. So reach out any time and we'll gladly continue the conversation.

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GRAFF

Examine your game from the inside out.