

The Caddiellac

“In the pursuit of perfection on the course, your clubs should follow your lead”

The Team

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Expansive Courses

Heavy Clubs a Burden



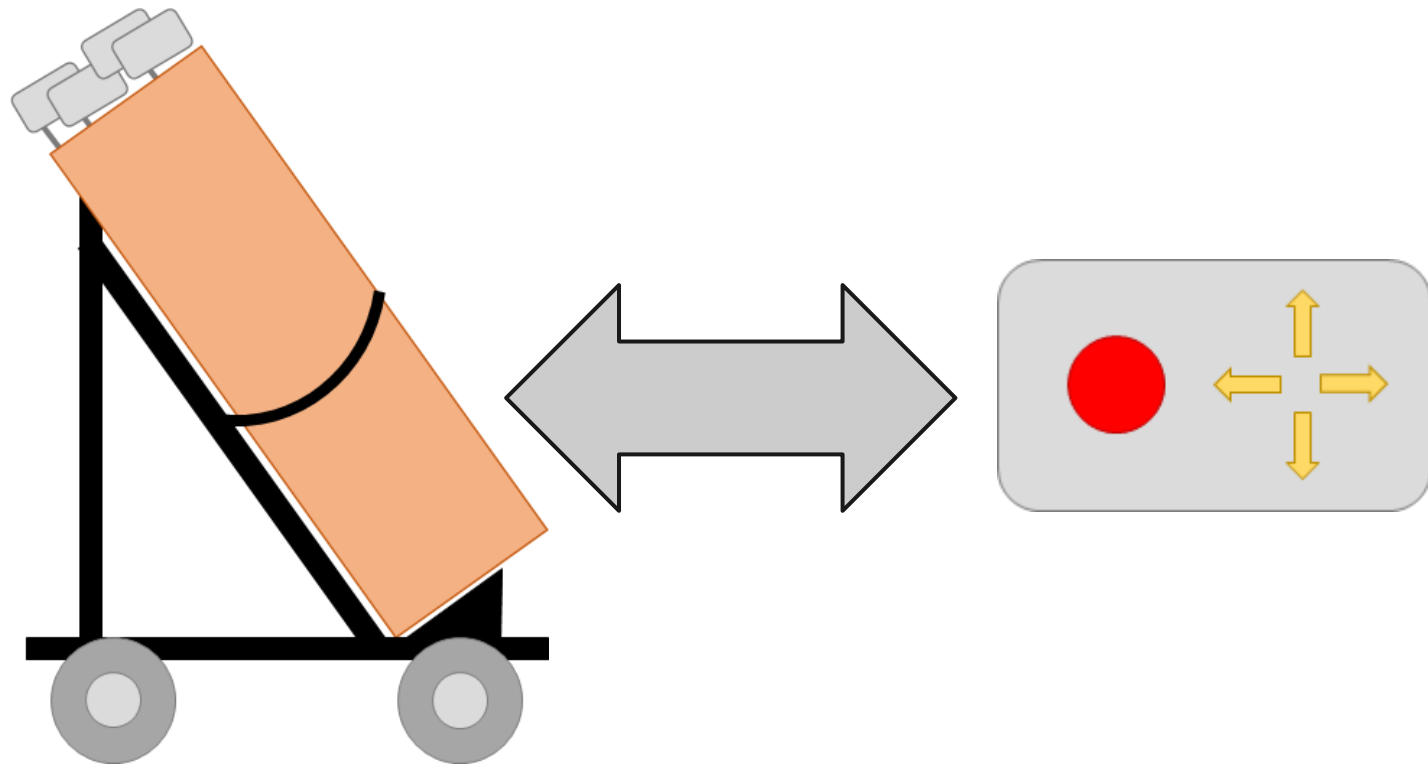
The Problem

- Golfers need access to a large selection of heavy golf clubs
- Golf courses are expansive and transporting clubs is tiresome
- Three ways that this problem can be resolved:
 - clubs carried around by hand - cumbersome and tiring
 - golfer can rent a golf cart - expensive for regular golfers
 - hire a caddie for the day - expensive for regular golfers
- Need for a method of transporting clubs which relieves the golfer from carrying them from stroke to stroke, and eliminates the necessity of renting an expensive piece of equipment or hiring someone

The Idea

- Design, test, and build a motorized, self-guided golf caddie
- The cart would be able to follow the golfer's route throughout the course
- No need to carry clubs
- A one-time payment for regular golfers

The Idea



Demonstrated Features

Self-Driving

- Fully automated, with four wheels and its own power source.
- Low center of gravity and wide-set wheels to ensure proper balance and necessary torque.

Demonstrated Features

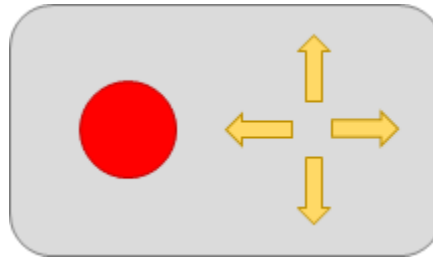
Golfer Detection and Following

- Caddie will detect the location of the golfer based off of a signal that is sent from a remote on the golfer's person.
- Will adjust its direction accordingly to follow the golfer along the course.

Demonstrated Features

Remote Control

- Allows the user to start and stop the caddie.
- Provides an option for manual override of the caddie
- Can be clipped to the golfer's belt loop.



Demonstrated Features

User-Friendly Design

- Caddie will accommodate the needs of the user.
- Design allows easy access to clubs.
- Stable and sturdy enough to navigate the terrain of the golf course.

Demonstrated Features

Potential Additional Features

- Speed Adjustment
 - Caddie able to adjust speed based on the golfer.
- Object Detection System
 - A system to detect any abnormalities in the path of the caddie such as sand traps, trees, or other golfers.

Available Technologies



Available Technologies

Self Driving:

- DC 12 volt motors [CIM 2.5" DC Brushed Motor PM25R-45F-1003]
- Gearbox [AndyMark Tough Box]
- Relay Board [SainSmart 8 Channel Relay Module B00570C5WK]

Available Technologies

Golfer Detection and Following

- Wireless Transmitter and Receivers
- GPS position tracking (possible)
- Bluetooth Communication (possible)
- LED visual tracking (possible)

Available Technologies

Remote Control

- **Wireless Transmitter** [Sparkfun RF Link Transmitter - 315MHz WRL-10535]
- **Wireless Receiver** [Sparkfun RF Link Receiver - 4800bps (315MHz) WRL-10533]

Potential Additional Feature:

- **Motor Driver** [L298 2A 6V-50V Compact Dual Motor Driver RB-Sbo-24] (for speed adjustment)

Projected Costs

Product	Part Number	Manufacturer	Cost per item
CIM 2.5" DC Brushed Motor PM25R-45F-1003	AM802-001A	AndyMark	\$28.00
8 Channel Relay Module	B0057OC5WK	SainSmart	\$18.10
RF Link Transmitter - 315MHz	WRL-10535	Sparkfun	\$3.95
RF Link Receiver - 4800bps (315MHz)	WRL-10533	Sparkfun	\$4.95
Gearbox		AndyMark	\$32.00
L298 2A 6V-50V Compact Dual Motor Driver	RB-Sbo-24	RobotShop	\$18.95
Custom Circuit Board		China	\$50.00
Chassis		Group	\$100.00
TOTAL			\$315.95

Engineering Content

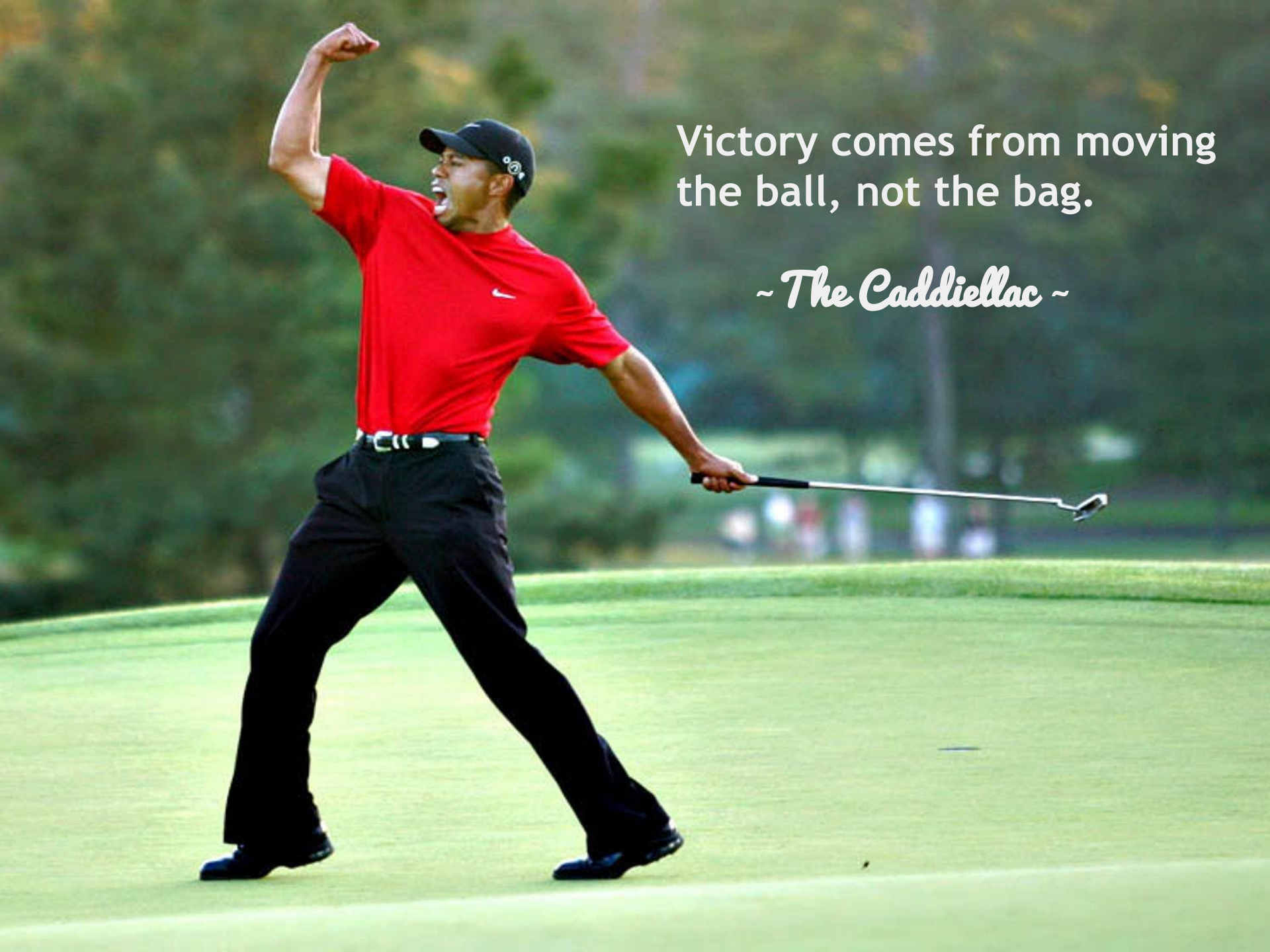
Tracking Methods

- Triangulation of a signal
- Camera paired with wearable LED arrangement
- GPS checkpoints
- Bluetooth communication
- Vision-based system

Engineering Content

Cart Design

- Variety of slopes, terrain, and surfaces
- Special consideration of “respectful distance”
- Efficient - one charge for 18 holes

A photograph of Tiger Woods on a golf course, celebrating a victory. He is wearing a red polo shirt with a white Nike swoosh, black trousers, and a black cap. He has his right arm raised in a fist pump and is holding a golf club in his left hand. The background is a blurred green landscape.

Victory comes from moving
the ball, not the bag.

~ The Caddiellac ~

Conclusion

Marketable

- Renting at golf course
- Frequent golfers
- One-time payment for regular golfers
- Golfers who want to enjoy walking the course

Questions?

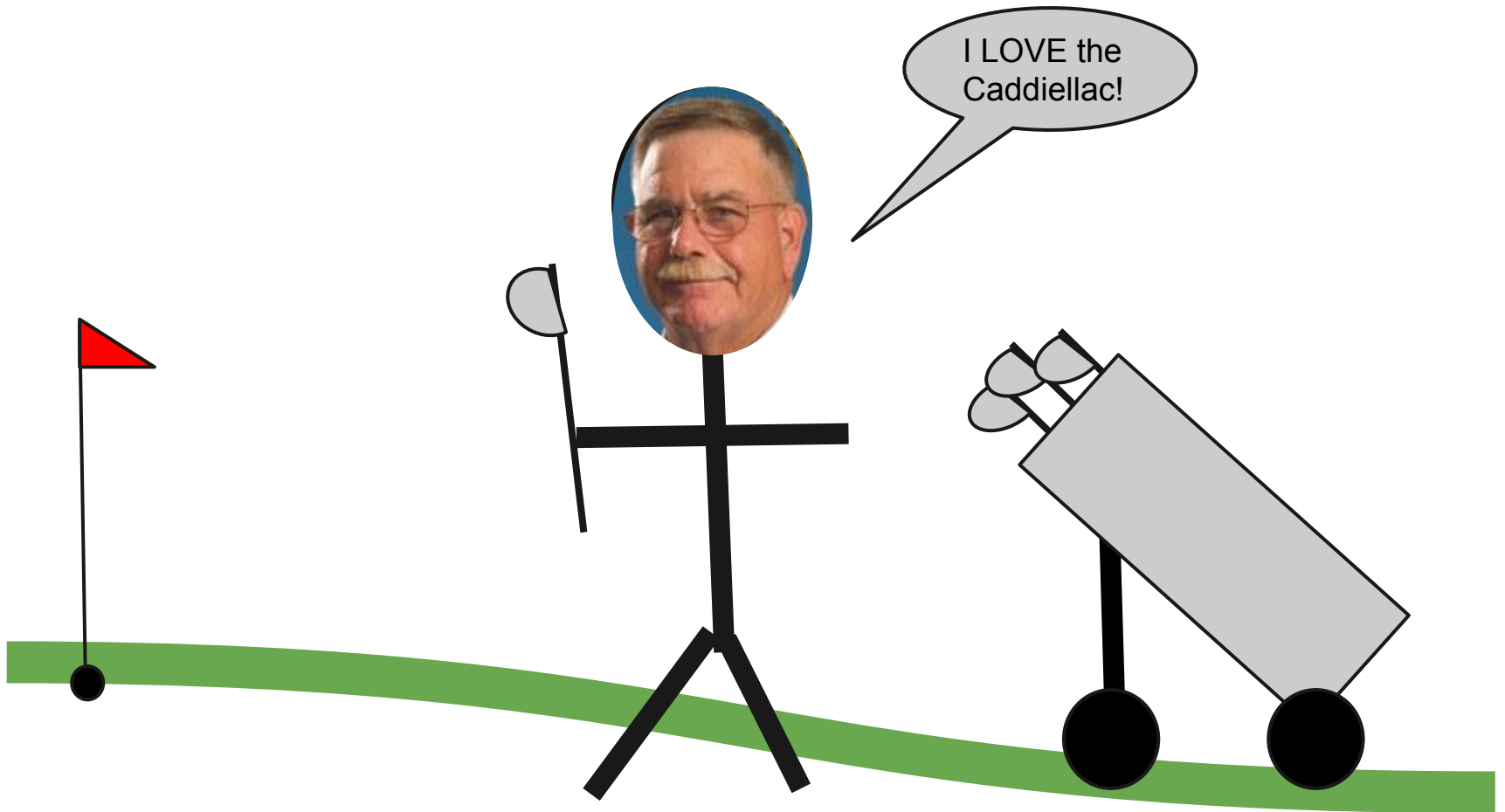


Image Reference

image 1: <http://www.golfcoursesforsaleusa.com/#/home/>

image 2: <http://www.villadeste.com/>

image 3: <http://www.pcbdesign.org/>

image 4: <http://wvuafm.ua.edu/2011/12/05/tiger-woods-ends-two-year-victory-drought/>