Blind Spotter
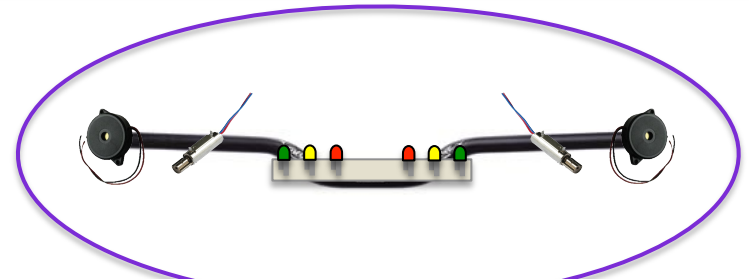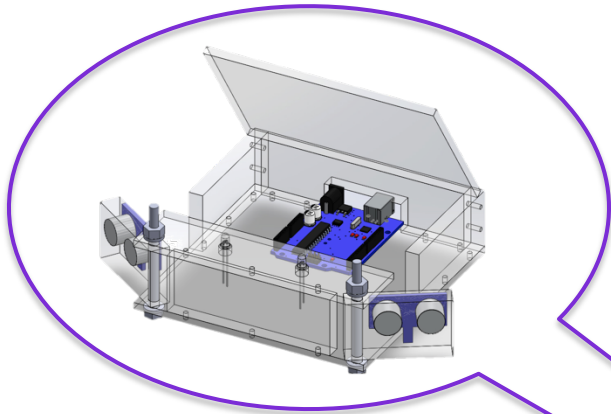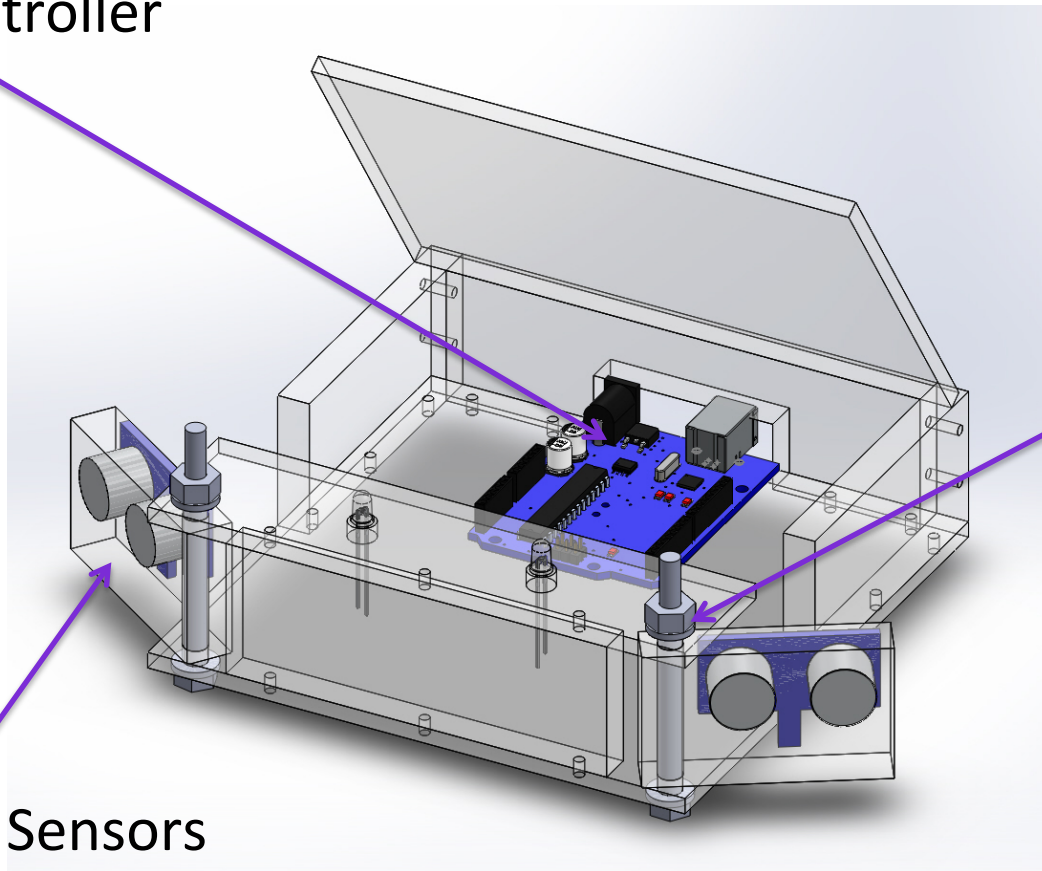

Purple A

Problem

2 main reasons for car-bicycle accidents

1) Cyclists unaware of oncoming dangers
2) Motorists unaware of their danger to cyclists

We tackle the first one!
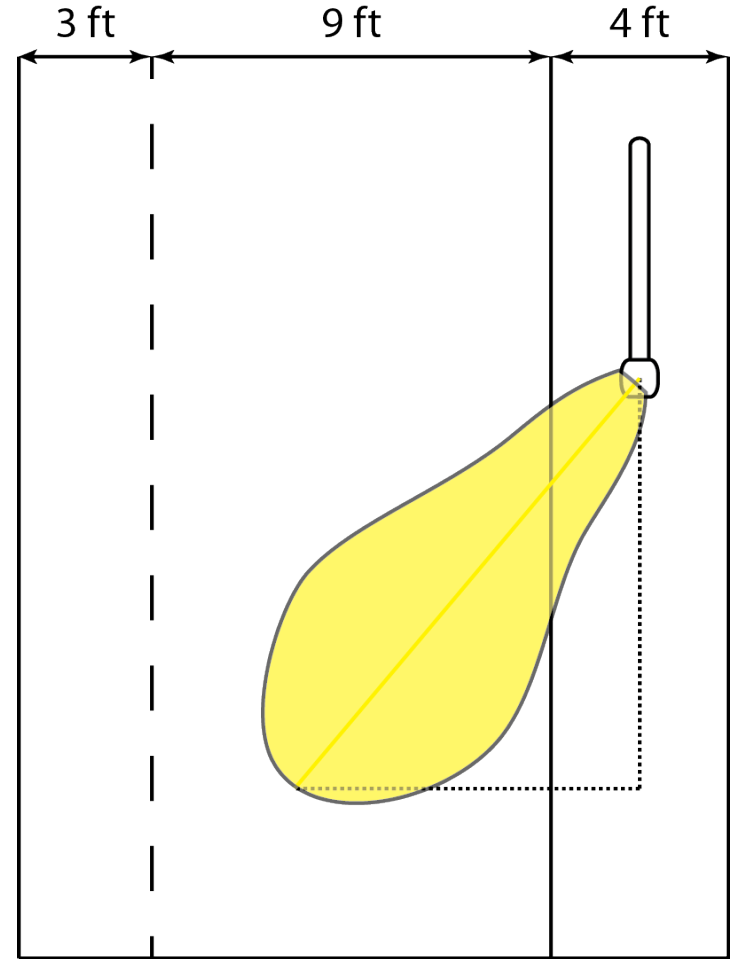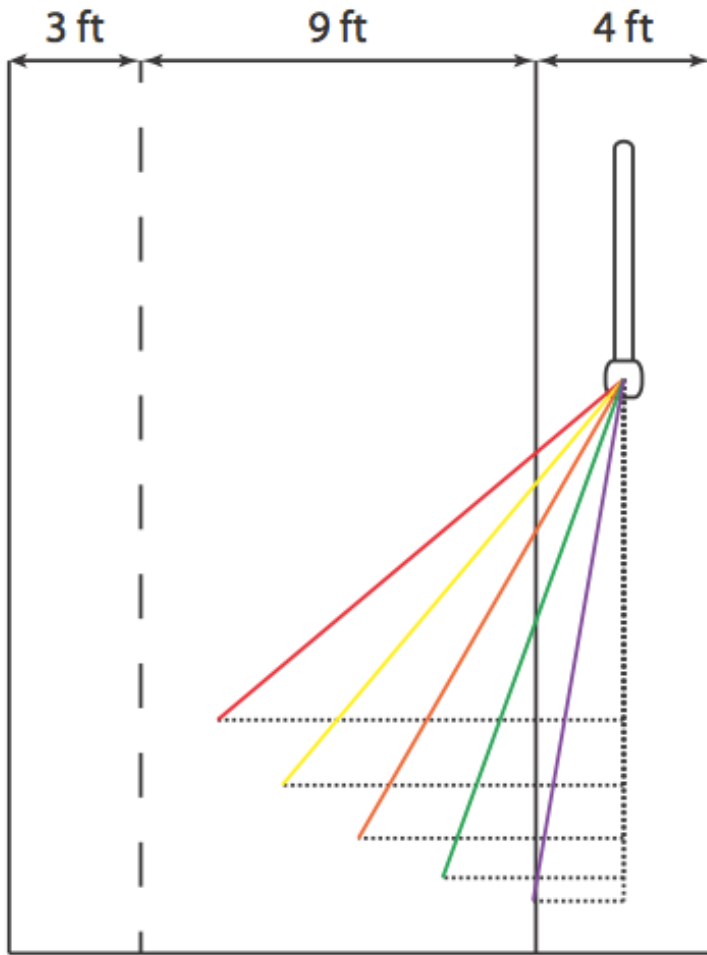
Stationary Rear Detection

Microcontroller

Sensor Angle Adjustment

Ultrasonic Sensors

Stationary Rear Detection

Front Alerting System Testing

Speaker

LEDs

Vibration Motor

Wireless Controller
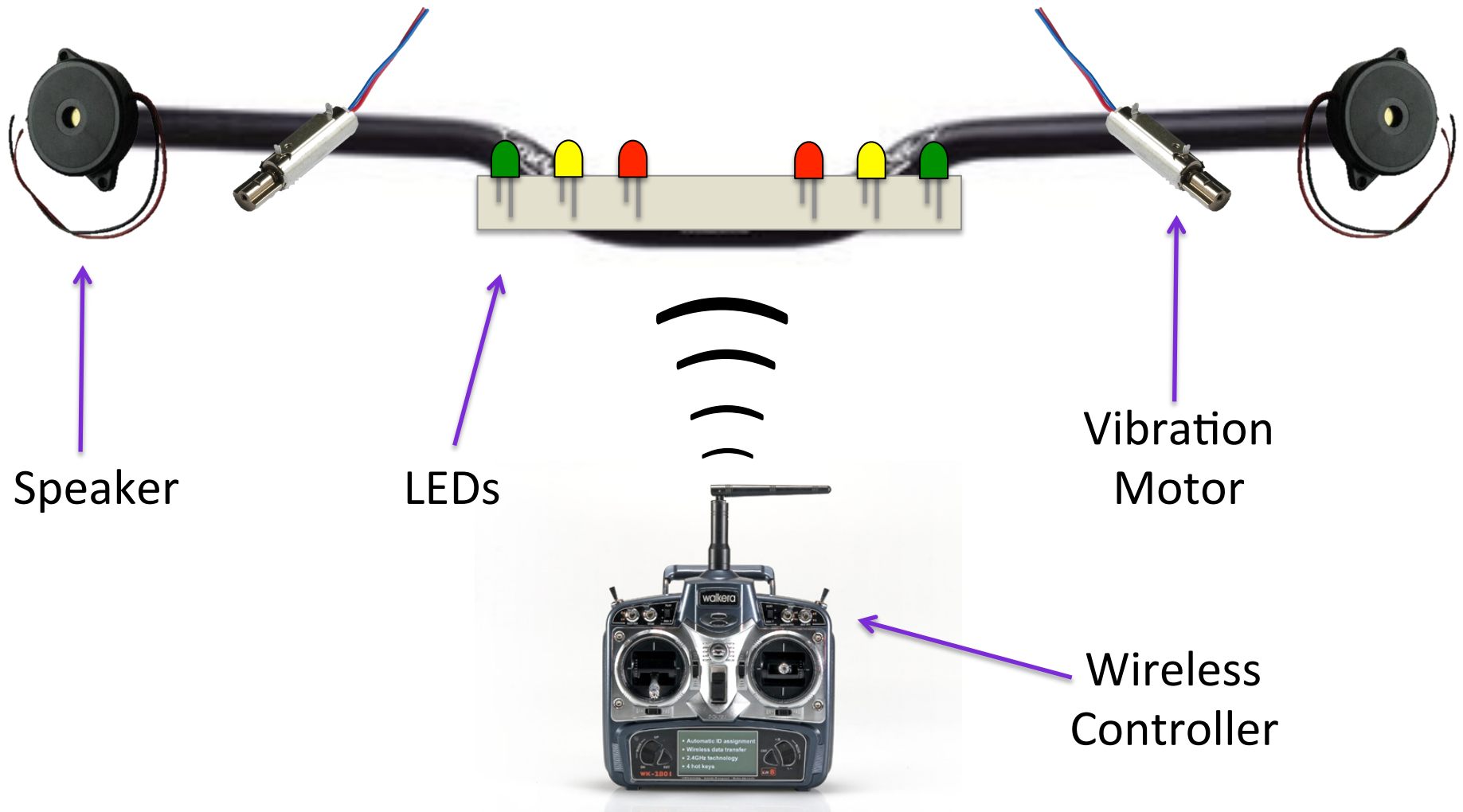
Front Alerting System Testing

Light	Vibration	Sound
0.9 seconds	0.9 seconds	0.6 seconds

- In daylight:
  - Sound is better than light, but not loud enough
  - Vibration was generally preferred in daytime
- At night:
  - Light is preferred
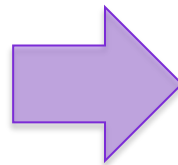
Combination of vibration and lights works best for both cases

User Feedback

"The vibration helps the most in detecting which side to be careful about" – *MIT Student tester*

"I'm nervous that this would be more startling than useful" – *Tourist tester*

"This product would make me feel safe and make me ride my bike more" – *Student tester*

Product Contract

Customer Need	Attribute	Engineering Specifications
Detects cars	Detection range	10 meters - city 40 meters - rural
Allows regular operation of bicycle	Weight	< 2kg
	Size	< 5"x 3"x 7"
Alerts cyclist	Reaction time	< 1.0 seconds
	Right/left are differentiated	Binary
Low maintenance	Battery life	> 50 hours
	Component life	3-5 years

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Sources

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