

## SHARING

- We presented our project to Ms. Casey Panning and she was impressed by our prototype. She suggested we make our collar more adaptable for cats.



- We met with Ms. Claudia Vecchio and she pointed out that strangers might be apprehensive about approaching an unknown animal. She suggested we make our collar announce that the dog is friendly.



- We showed our prototype to Mr. Jack Feder P. Eng. and he helped us troubleshoot the electronics of our project.



- We met with Ms. Cathy Broughton who provided us with many insights concerning public's attitudes toward dogs and the strengths and benefits of Pinder, as a professional dog walker.



- We presented our innovative solution and skit to 210 middle school students at our school, Bayview Glen.



## IMPLEMENTATION

- Next steps for our research project develop partnerships with manufacturers to design and produce our solution

•



**An innovative way to reunite  
lost pets with their families**

**Ctrl-Z Bayview Glen  
FLL Team #5831**

Visit:

- (a) Our website at  
[http://flctrlz.github.io/animal\\_allies/](http://flctrlz.github.io/animal_allies/)
- (b) Our video at  
<https://youtu.be/8qM0pLtEePo>



**FIRST LEGO LEAGUE**



- Our FLL Animal Allies problem: **Every year, about 1 million pets are lost in Canada and only 22% are reunited with their families. This is a cause of significant grief to the pet owner's family and adversely affects the family's health and social well-being.**

- We have used experts, articles, websites and conducted a survey

**EXPERTS**

- ## SOME OF OUR ARTICLES WE REFERRED TO

- We conducted a patent search.
- Many existing solutions use cell phone towers to locate the pet. This requires a monthly subscription which can be very expensive.
- Other solutions notify passersby that the animal is lost but require them to have an app on their mobile device. Not everyone would have this app and would, therefore, limit the effectiveness of these solutions.

### Ctrl-Z Lost Pet Survey

194 Middle School Respondents - Bayview Glen  
December 8, 2016

Ctrl-Z conducted a survey using Google Forms and 194 middle school students responded. The purpose of the survey was to determine the number of respondents who have lost a pet and to determine of those lost pets, how many were reunited with their families.

Dog Owners

Category	Percentage	Count
Dog owners who have lost their dog	83%	53
Dog owners who have never lost their dog	17%	11

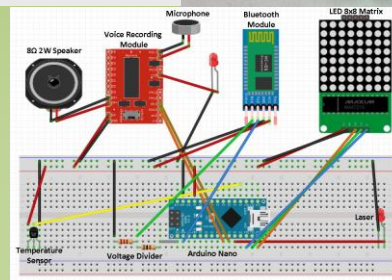
Cat Owners

Category	Percentage	Count
Cat owners who have lost their cat	77%	17
Cat owners who have never lost their cat	23%	5

Reunited With Lost Pet

Category	Percentage	Count
Reunited with lost pet	71%	12
Not reunited with lost pet	29%	5

Results: Of the 194 respondents, 65 owned a dog, 22 owned a cat and 107 owned neither. 17% of dog owners have lost their pet and 23% of cat owners have lost their pet. Of those pets that were lost, a high proportion (29%) were never reunited with their pet. This suggests that there is a high need for the Pinder Pet Finder as a inexpensive way to increase the chances of reuniting a lost pet with its owner.



Ctri-Z FLL Team #5831 Pinder Pet Finder Financial Projection											
Cells in yellow can be used to sensitize the projection											
	Dogs			Cats			Sales Vol.	Selling Price/Unit	Annual Revenues	Variable Cost/Collar	
	Number	Long-term Pinder Pet Finder Take Up		Number	Long-term Pinder Pet Finder Take Up	Annual Penetration					
Yr 1	6,400,000	10.00%		7,000,000	5.00%	10.00%	99,000	\$49.99	\$ 4,949,010	\$33.50	
Yr 2	6,400,000	10.00%		7,000,000	5.00%	15.00%	148,500	\$49.99	\$ 7,423,515	\$33.50	
Yr 3	6,400,000	10.00%		7,000,000	5.00%	30.00%	297,000	\$49.99	\$ 14,847,030	\$33.50	
							Year 1	Year 2	Year 3	Years 4+	Value of Business Today
Revenue							\$ 4,949,010	\$ 7,423,515	\$ 14,847,030		
Manufacturing Costs											
Variable Cost							\$ 3,316,500	\$ 4,974,750	\$ 9,949,500		
Marketing Costs							\$ 250,000	\$ 70,000	\$ 15,000		
Total Costs							\$ 3,566,509	\$ 5,044,899	\$ 9,964,797		
Pre tax cash flows							\$ 1,382,411	\$ 2,378,617	\$ 4,862,233		
Income taxes at 30%							\$ 414,723	\$ 713,585	\$ 1,458,676		
After tax cash flows							\$ 967,688	\$ 1,665,032	\$ 3,403,557		
Year							1	2	3		
Discount Rate (assumed)							35%	35%	35%	35%	35%
Present Value of Cash Flow							\$ 716,806	\$ 913,598	\$ 1,383,351	\$ 3,952,432	\$ 6,956,187
<b>Notes</b>											
Assumptions: (a) Market in which to sell the Pinder Pet Finder is initially (first 3 years) limited to Canada, (b) There are 6.4 million dogs and 7.0 million cats in Canada, (c) Dog owners are more prompt (and more motivated) in searching for lost pets, (d) Dog owners contact and sell shelters sooner than cat owners after a pet goes missing, (e) Price of competitive products include: (i) implants - \$45, (ii) pet collar - \$65 plus \$10/month subscription, and (iii) "WUP" multicolored LED collar - \$450. Due to (c) and (d), Ctri-Z assumes that a greater percentage of dog owners (i.e. 10%) will purchase Pinder versus cat owners (5%). Based on selling price of competitive products, Ctri-Z sets the price of Pinder at \$49.99 per unit. The per unit cost to manufacture Pinder is \$33.50 (w/ ref to accompanying schedule). To promote awareness of Pinder, Ctri-Z incurs annual marketing costs of \$250,000 in year 1, \$70,000 in year 2 and \$55,000 in year 3 and subsequent years. 10% of those who would ultimately purchase Pinder do so in year 1. In year 2, 15% and in year 3, 30%. It is assumed that in year 4 and subsequent years, sales are expanded to include the U.S.A. market and Ctri-Z is able to achieve annual profitability consistent with that generated in year 3. Our discount rate of 35% is an estimate of the rate of return demanded by an equity investor in our Pinder Pet Finder business.											