

Executive summary

The purpose of this project is to create a device that will serve to deter birds from flying into windows. Our project involves developing a device that mounts to the outside of buildings that actively senses when birds are approaching the window and flashes light at the birds to deter them from the buildings' windows. For this project, we used an OpenMV camera, PIR sensor, Ultrasonic sensor, and strobe light. The process in which our team took was to distribute the work evenly between each member. This was a challenge with COVID-19 restrictions, but each team member was still able to develop their own parts and successfully implement our individual work together. Originally, our project partner's idea was to use an Arduino microcontroller and just an ultrasonic sensor. However, after implementation and initial testing, our team found that the ultrasonic sensor was too slow to detect incoming birds. After some revisions to our design, we decided to use an OpenMV camera microcontroller and machine vision software to detect changes in the camera frames. This is just one example of how our team was flexible, made evaluations, and iteratively revised our implementation throughout the development process of our system. Throughout the phases, our team has learned so much from each other and the experience. Some of the key lessons that we have learned is to be flexible, especially when working remotely on a physical project and experience lab space and meeting restrictions due to COVID-19. In conclusion, this co-working and co-learning experience was impactful both to our project team members and our project partner.

Project Timeline

			Week of the Term										
TASK NUMBER	TASK TITLE	TASK OWNER	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7	Week 8	Week 9	Week 10	Finals
1 Fall Term													
	Engineering												
1.1	Requirments	Team											
1.2	Block Diagram	Team											
1.3	Project Charter	Team											
	Meeting with project partner	Team											
1.4		Team		10/23/20			10/9/20			11/6/20			
2 Winter Term													
	Block check offs #1	Team											
2.1.1	Solar Panel	Victoria											
	LED Light												
2.1.2	Control	Kathleen											
2.1.3	PIR sesnor	XiYuan											
	Block check offs #2	Team											
	Lithium ion												
2.2.1	Battery	Victoria											
	Ultrasonic												
2.2.2	Sensor	XiYuan											
2.2.3	Strobe Light	Kathleen											
	Block check offs #3	Team											
	Charge controller												
2.3.1	Module	Victoria											
	OpenMV												
2.3.2	microcontroller	XiYuan											
2.3.3	Code	Kathleen											
	Meeting with project partner	Team					1/29/21				2/26/21		
2.4		Team											
3 Spring Term													
	First iteration of System												
3.1	Integration	Team											
	Second iteration of system												
3.2	inegration	Team											
	Project closeout and showcase												
3.3	showcase	Team											
	Meeting with project partner	Team											
3.4		Team									5/21/21		