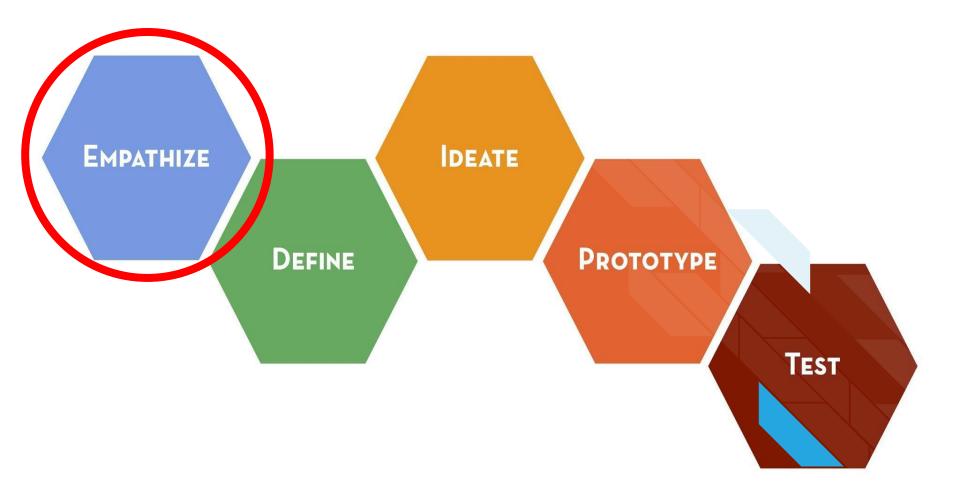
The Emergency Beacon

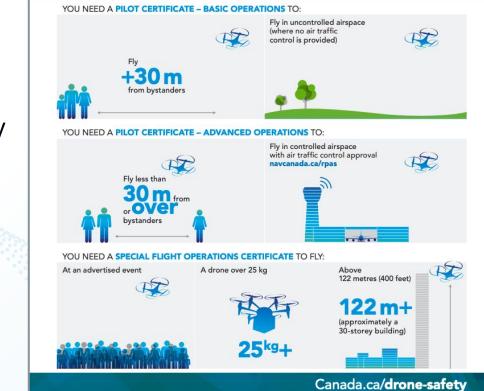
The 9ers By : Karen Hakko, Elsa Lange, Tri Thai, Jacob Troop and Sandeep Sinha March 31, 2021



	Specific Need	Importance	
Needs Identification	Safety and Security	1	
 JAMZ team requirements Emergency beacon 	Accuracy of Data	2	
	Reliability of Data	3	
	Communication with Pedestrians	4	
	Size/Weight	5	
	Aesthetics	6	

Transport Canada

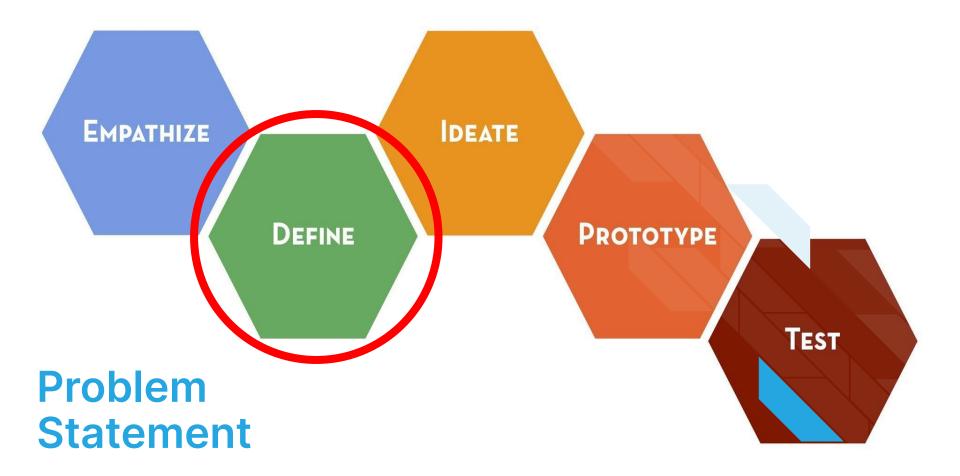
- Drone requirements
- Effect on our beacon
- Importance of accuracy



Benchmarking

- Similar products
- What we learned
- Application plan





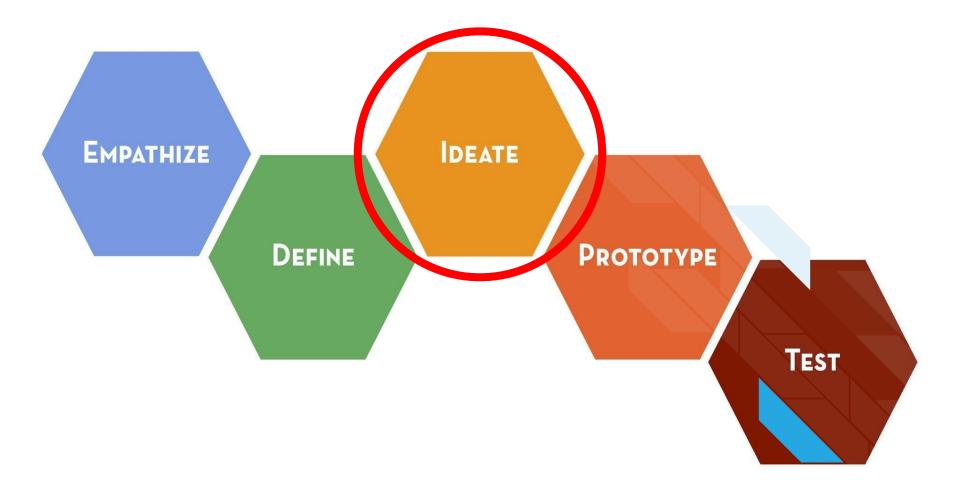
Design Criteria

Table 1 - Emergency Beacon Design Criteria Based on the Identified Needs

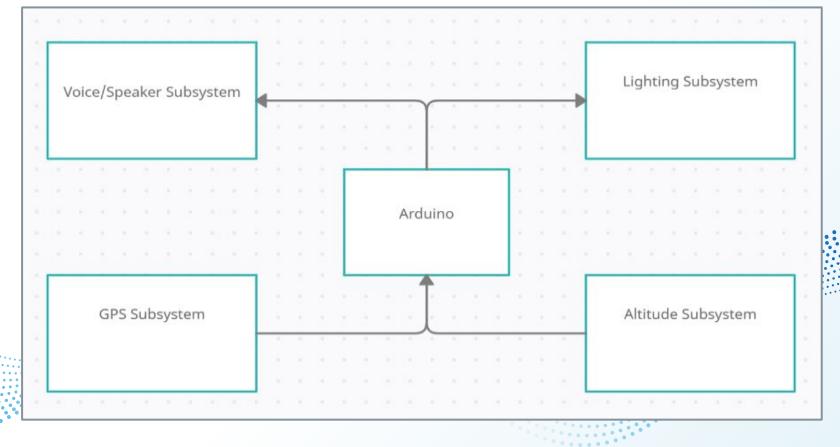
Design Criteria	
Data transmission	
GPS and transmission.	
Data transmission.	
Data transmission.	
	Data transmission GPS and transmission. Data transmission.

Product and company	Importance (weight)	Eureka Products: Marco Polo - Ultralight Single Drone Recovery System	Loc8tor	sMRT AU10-HT	Flytrex	
Transmitter/ GPS	4	4	3	2	1	
Battery and power usage	2	4	3	2	1	
Size	1	3	4	1	2	
Speed	3	4	3	2	1	
Cost	2	3	4	1	2	
Range	3	3	2	4	1	
Total		21	19	12	8	all in the second secon
Weighted Total		54	45	33	18	
Be.						
Legend	Green	Yellow	Orange	Red		
Grade	4	3	2	1		

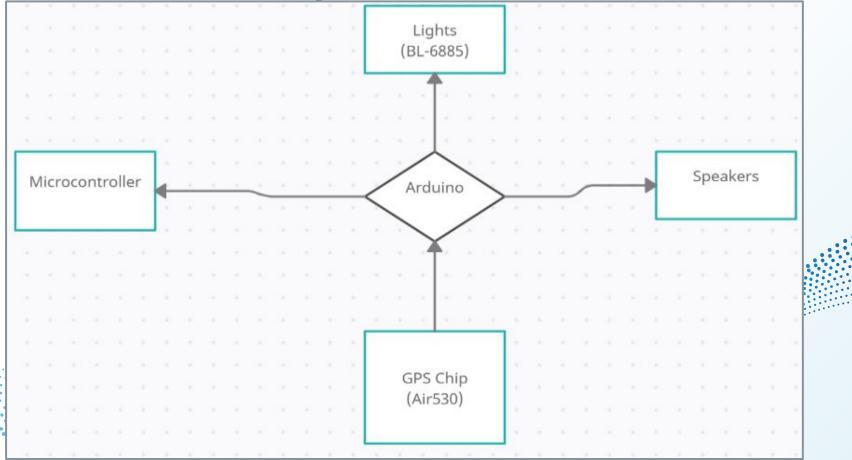
Table 5- Ranks of Technical Benchmarking	Based of	on Importance
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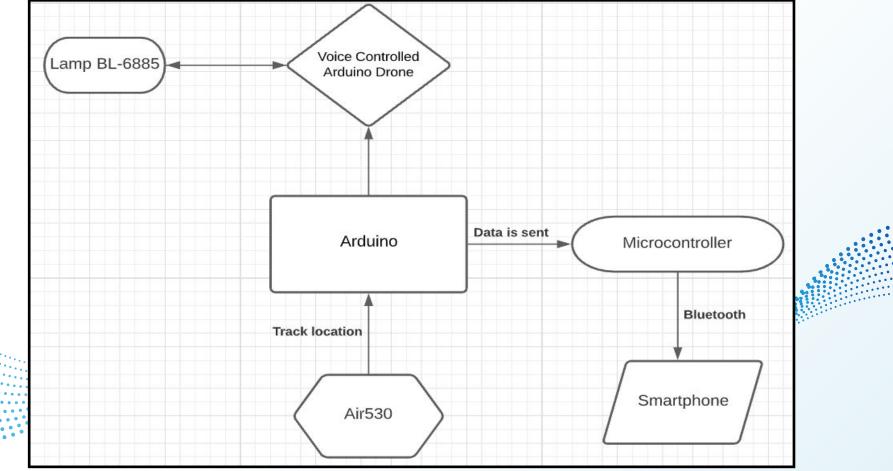
Subsystems



Global Concept A



Global Concept B



Project Plan



Bill of Materials (BOM)



Breadboard (\$11.30)

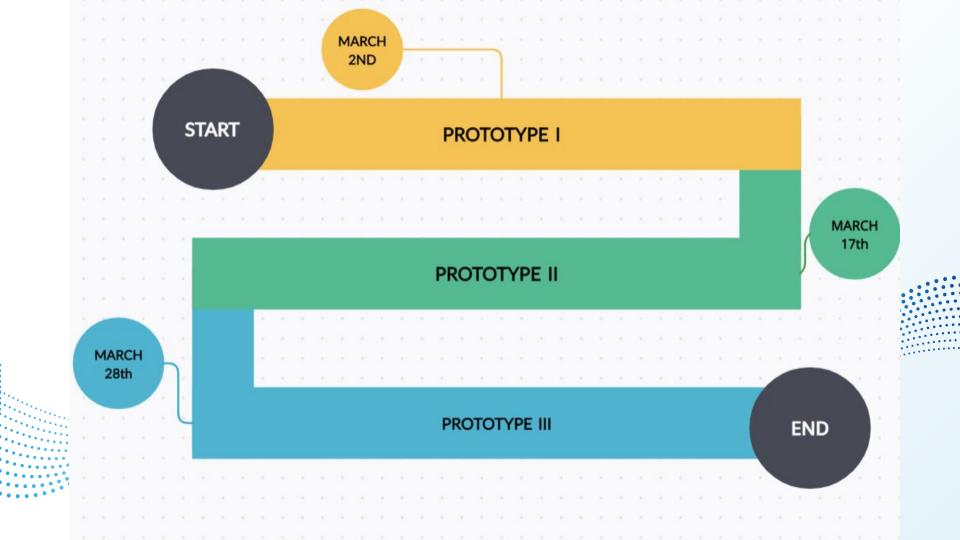
Barometric Pressure Sensor (\$7.89)

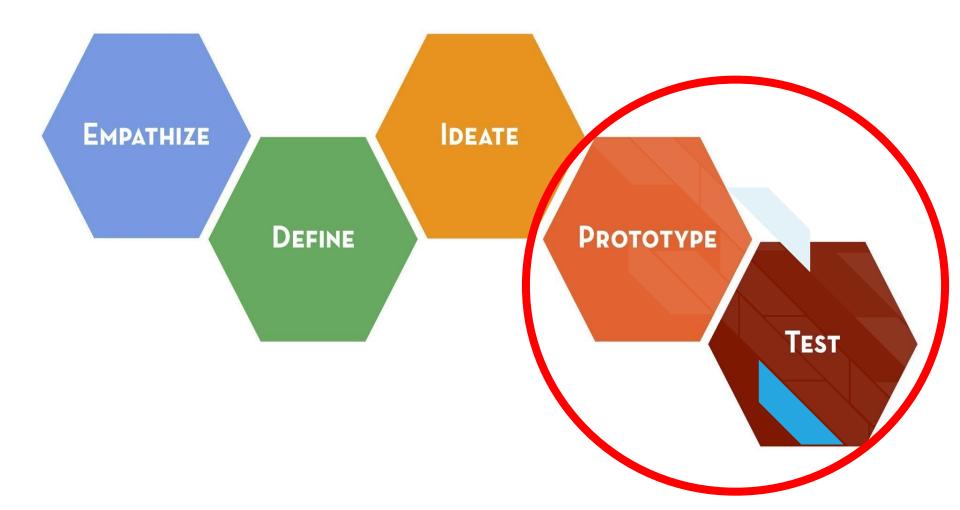
GPS Module (\$29.98)

Speakers (\$14.55)

LED lights (\$1.20)

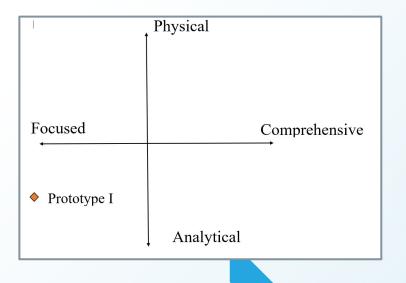
Acrylic Case (\$13.00)





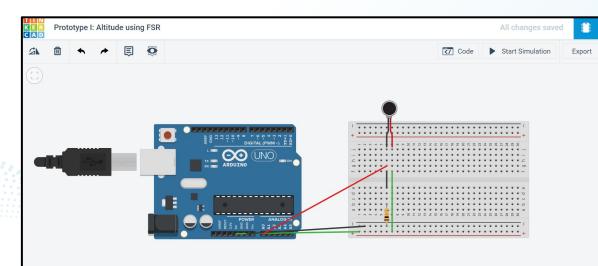
Phase 1: Prototype I

Cost: \$0



Altitude Subsystem

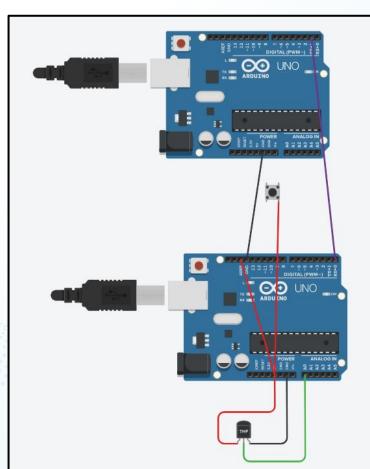
- Testing done on TinkerCAD
- Low fidelity
- 2 tests





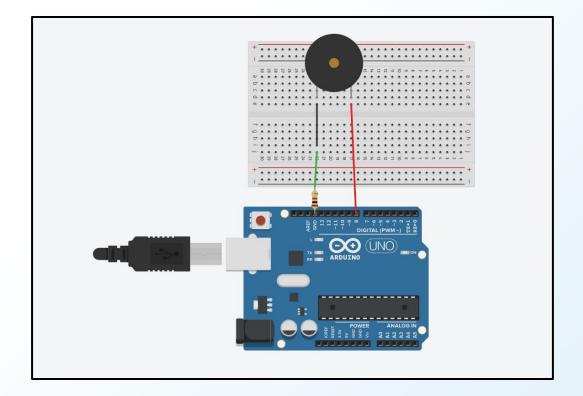
Location Subsystem

- Testing was done on TinkerCAD
- Low fidelity



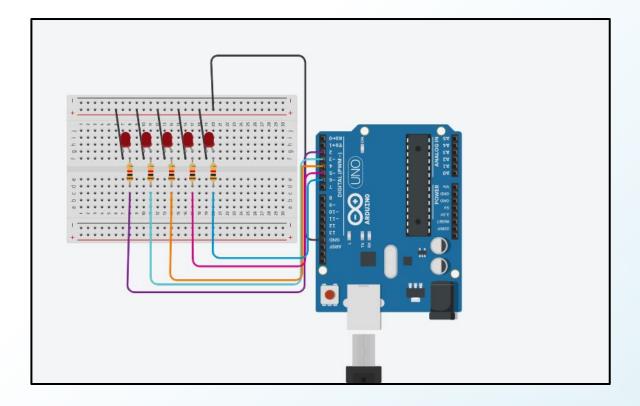
Voice Subsystem

Testing done on TinkerCAD



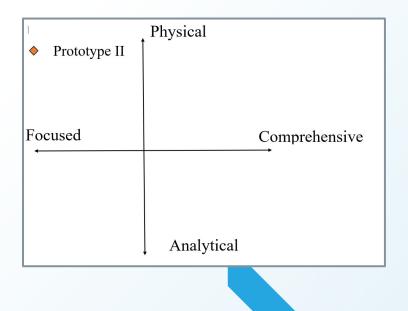
Light Subsystem

Testing done on TinkerCAD



Phase 2: Prototype II

Cost: \$50



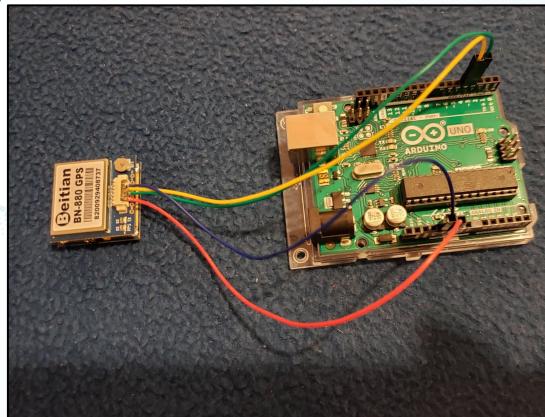
Altitude Subsystem

- Testing done using BMP180
- Satisfied design criteria

COM3			
1			
REBOOT			
BMP100 init success			
baseline pressure:	1002,51 mb		
relative altitude:	0.3 meters,	1	1 feet
relative altitude:	0.1 meters,	0) feet
relative altitude:	-0.3 meters,	-1	feet
colativo altitudo:	0.1 motors,	0) foot
relative altitude:	-0.0 meters,	-0) feet
relative altitude:	0.1 meters,	0	feet.
relative altitude:	0.2 meters,	1	feet
relative altitude:	0.3 meters,	1	feet
relative altitude:	0.1 meters,	0) feet
relative altitude:	0.6 meters,	2	feet
relative altitude:	0.0 motors,	.0	foot
relative altitude:	0.1 motors,	0	feet
error retrieving te	sperature me	1512	rement
relative altitude:	44330,0 met	ers,	s, 145440 feet
relative altitude:	0.6 meters,	2	1 feet
relative altitude:	0.2 meters,	1	l feet
relative altitude:	0.2 meters,	0) feet
relative altitude:	0.7 meters,	2	feet
relative altitude:	-0.1 meters,	-0) feet
celative altitude:	0.0 meters,	0) feet
relative altitude:	-0.3 meters,	-1	l feet
relative altitude:	-0.1 meters,	-0) feet
relative altitude:	-0.2 meters,	-1	l feet
relative altitude:	0.0 meters,	0) feet
relative altitude:	0.4 motors,	1	l foot
relative altitude:	0.7 meters,	2	feet
relative altitude:	0.0 meters,	0	feet.
relative altitude:	0.2 meters,	- 1	l feet
and and the second s	-0.1 meters,	-0) feet
relative altitude:			- Freek
relative altitude:	0.1 meters,	0	1000

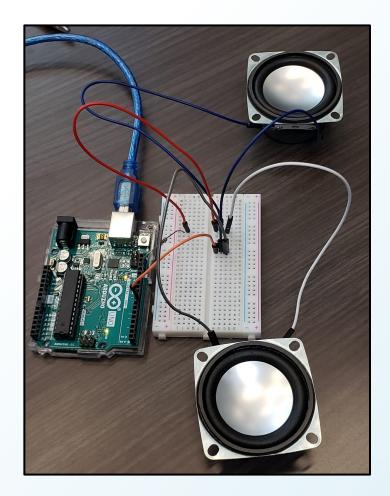
Location Subsystem

- Testing done using the Beitian BN-880
- Test failed



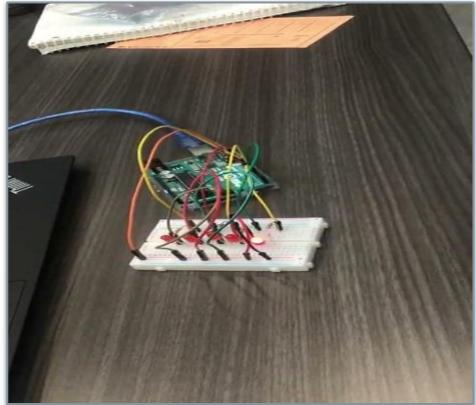
Voice Subsystem

- Testing done using the speakers
- Satisfied design criteria

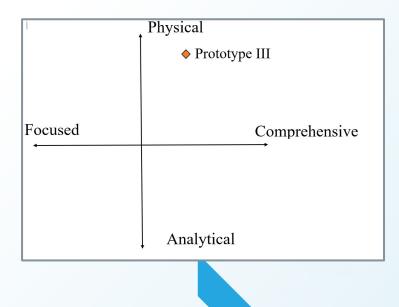


Light Subsystem

- Testing done using the red LED lights
- Satisfied design criteria



Phase 3: Prototype III

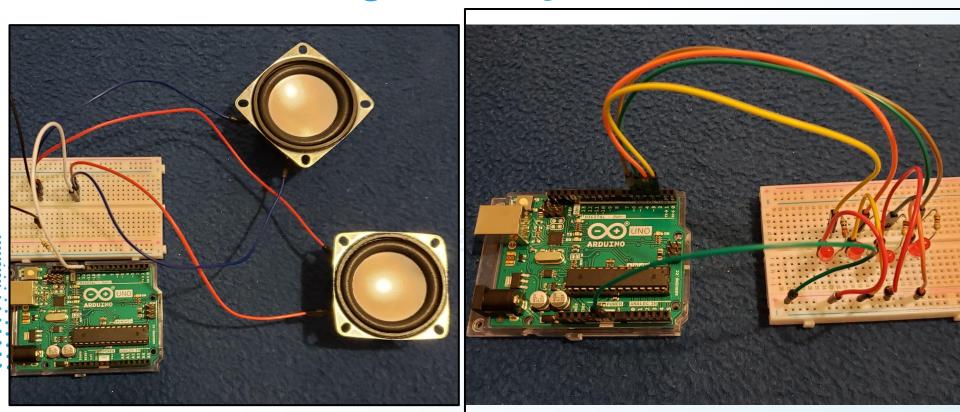


Location Subsystem

- Testing done using Beitian BN-880
- 2 tests
- Satisfied design criteria

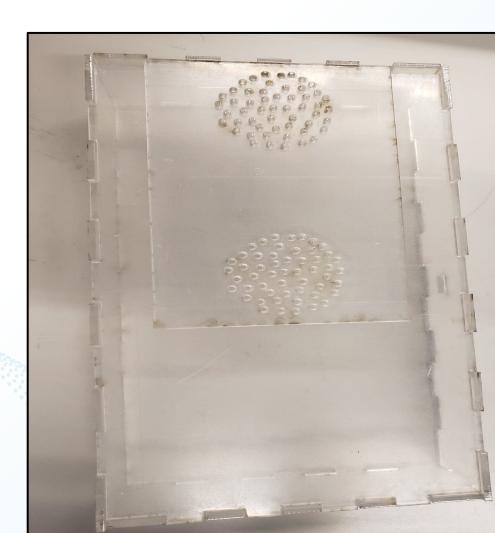
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4104117.922 -> AD 42			f many lates	anti	a Tilorrai	feature												
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4:14:19,408 ->																		
1-01118.005 -> date	1000	Latitude	Gentlante	ria.	Date:	Time	Tate	ALL	Gaine 8	peed Card	listene	Course	Gerif	Chara	Bridenese.	Chevistian		
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:HE: [0.455 -+																		
-14:13.455 -> ++++			*********		umoui	about the				1111-111					0	1		
												11110	11.0	805				
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Voice and Light Subsystems

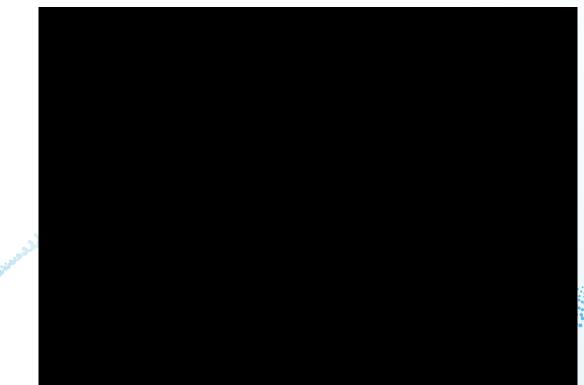


Final Prototype

- Full prototype with acrylic case
- Interpreted status



Product Demonstration





Lessons learned and Future work

- Always more to do than anticipated
- Underestimated task duration
- Applied most lessons learned during labs

• Waterproofing test



Questions

