

pomdot

What is it?

Simple, rugged wearable device for kids between ages 2 and 10 that provides real-time location data to parents for parents' peace of mind

Why is This Useful?

- Interviews with 60+ parents
- Preventative > Reactionary
- Pre-Phone
- Want to keep tabs instead of blind trust
- Quiet fears around abduction

Existing Products



jiobit



AngelSense

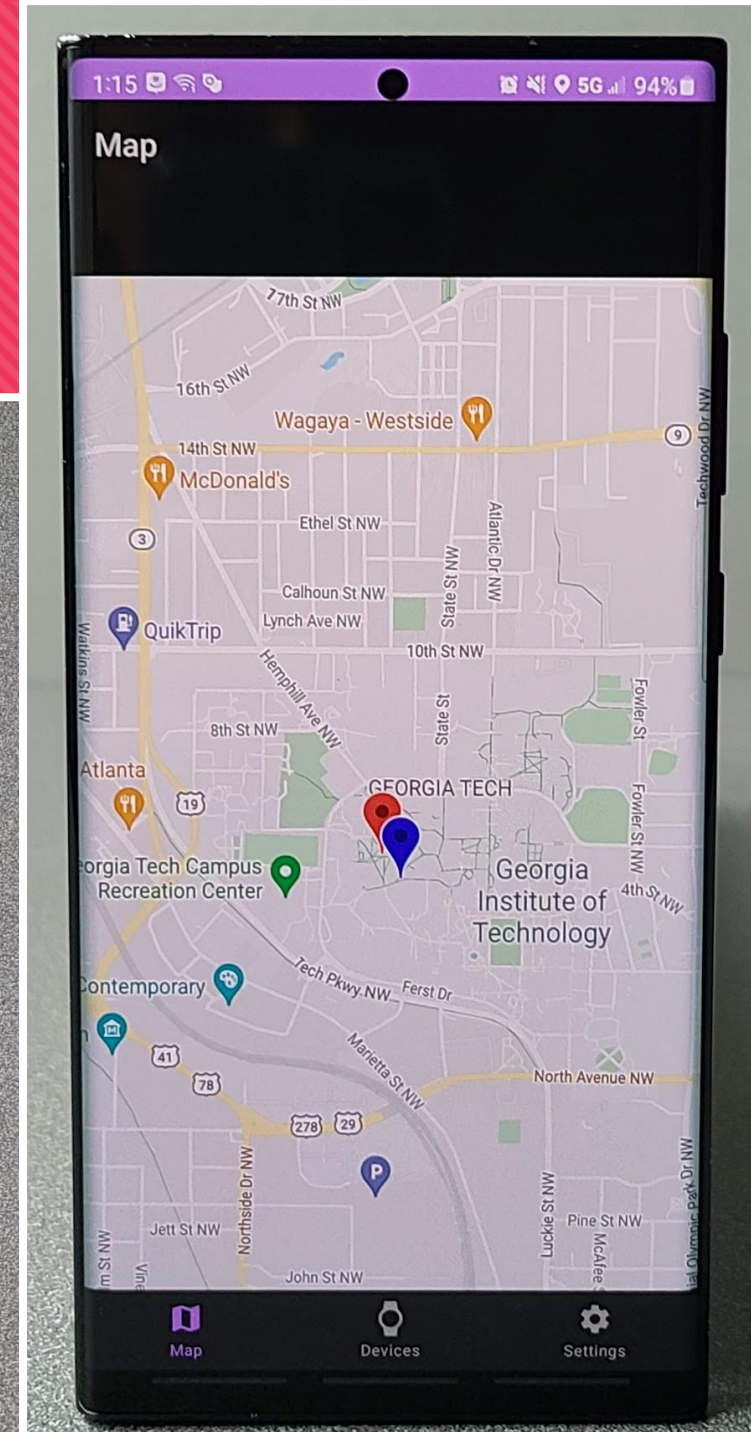
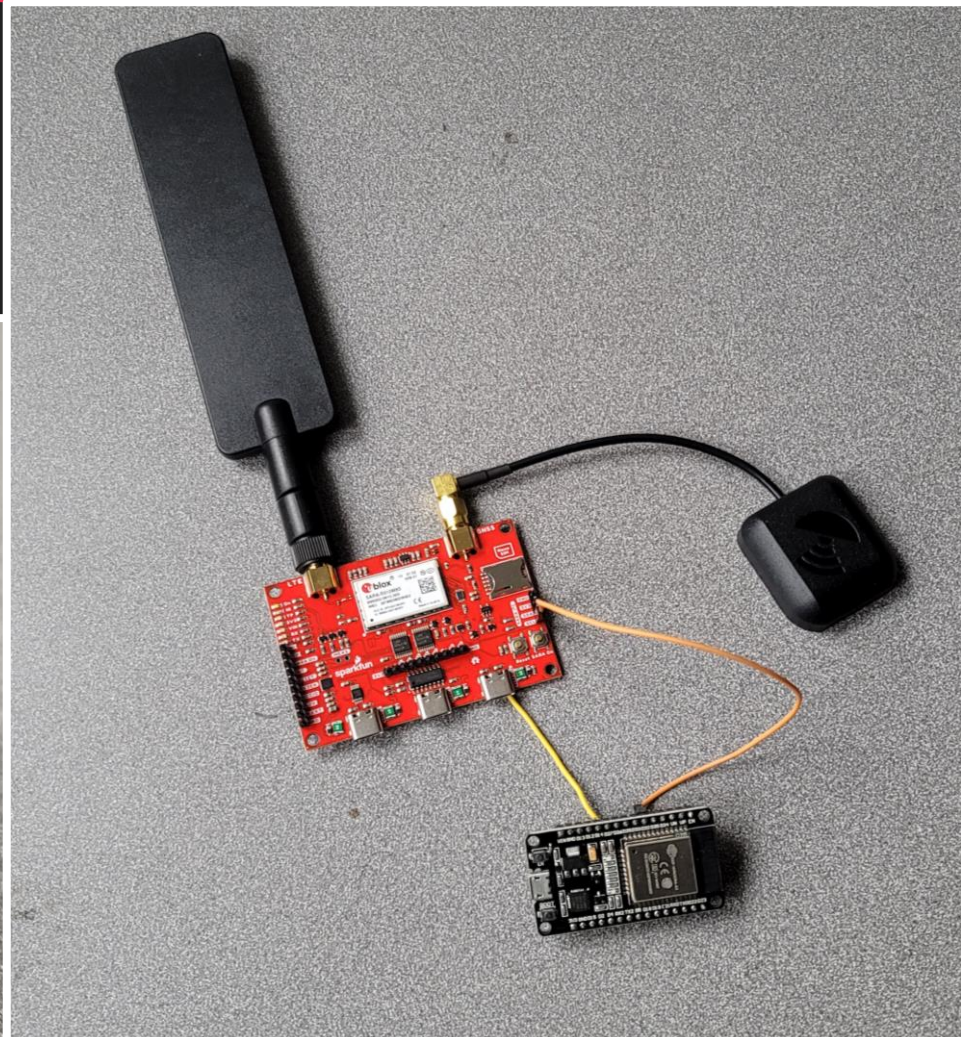


Gizmo Watch 2

What Do Parents Want?

- Robustness and Durability → **UL Certified**
- Location Tracking → **Accurately track wearer in all settings**
- Long Battery Life → **Low energy consumption electronics and energy harvesting**
- Feature Scarcity → **No Screen**
- “Set and forget” → **Childproofing the removal process**
- Unauthorized Removal Detection → **Hidden Device Removal Sensing**

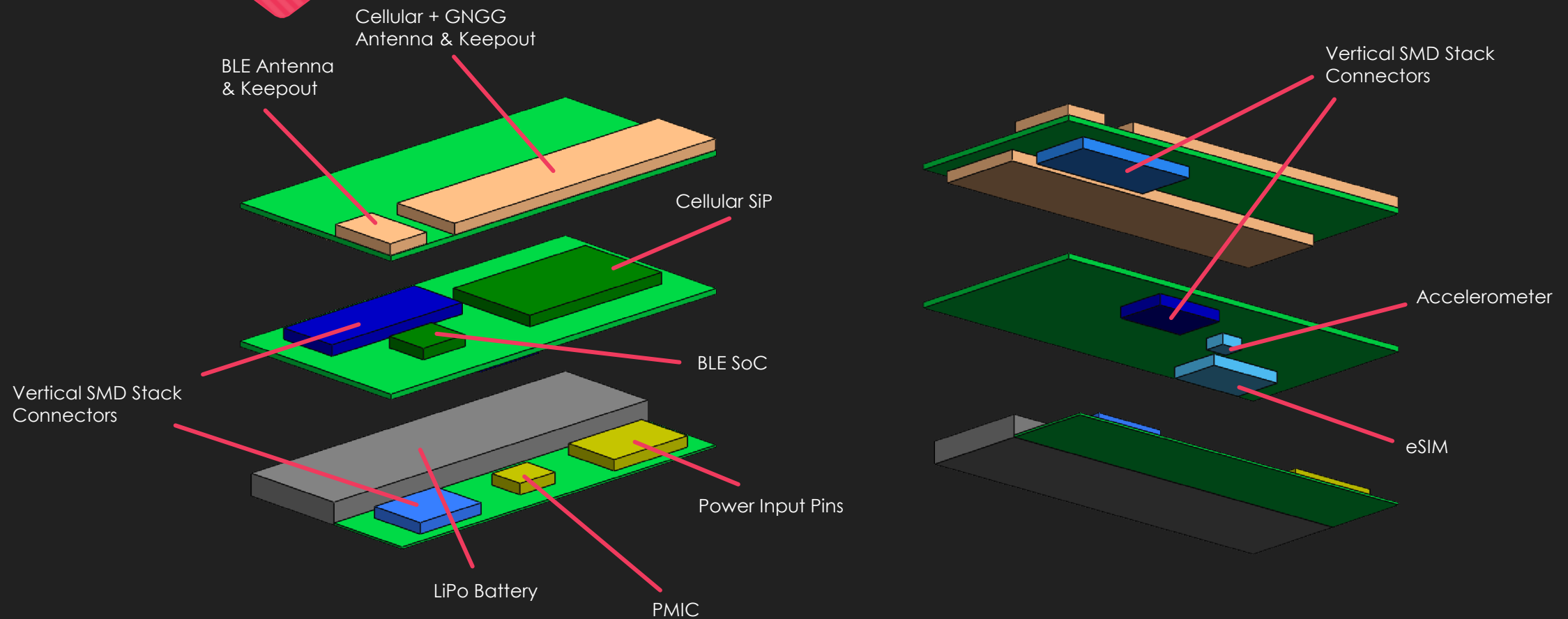
Lo-Fi Prototype

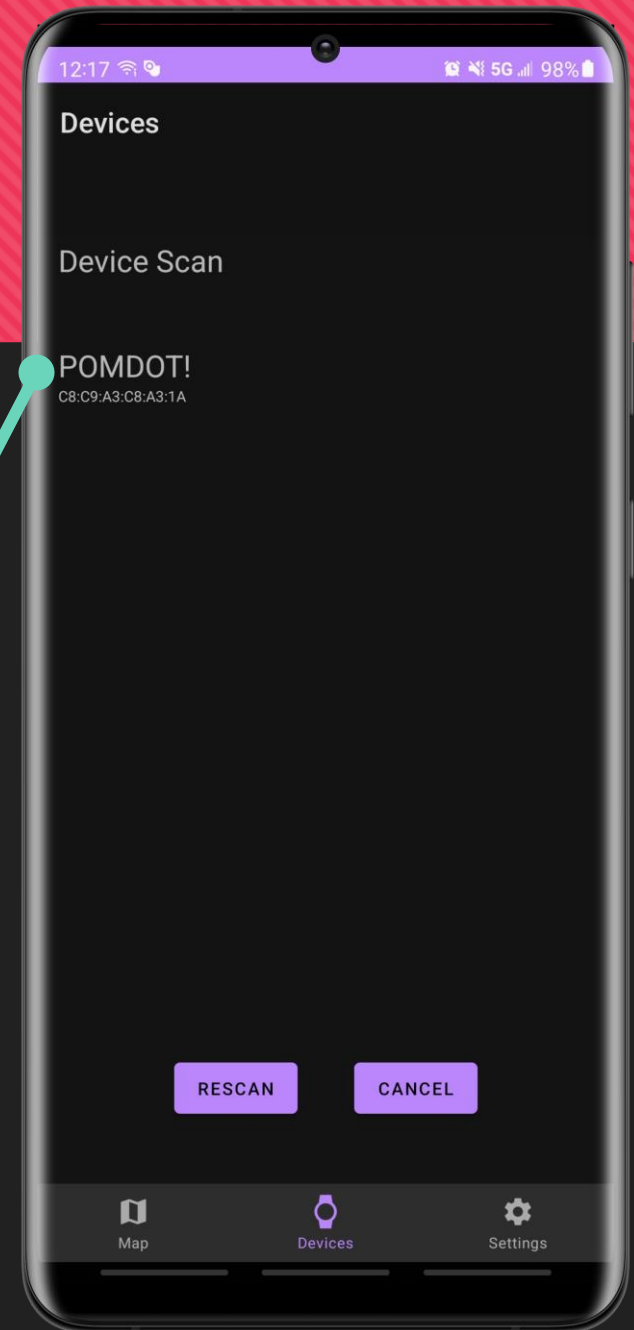
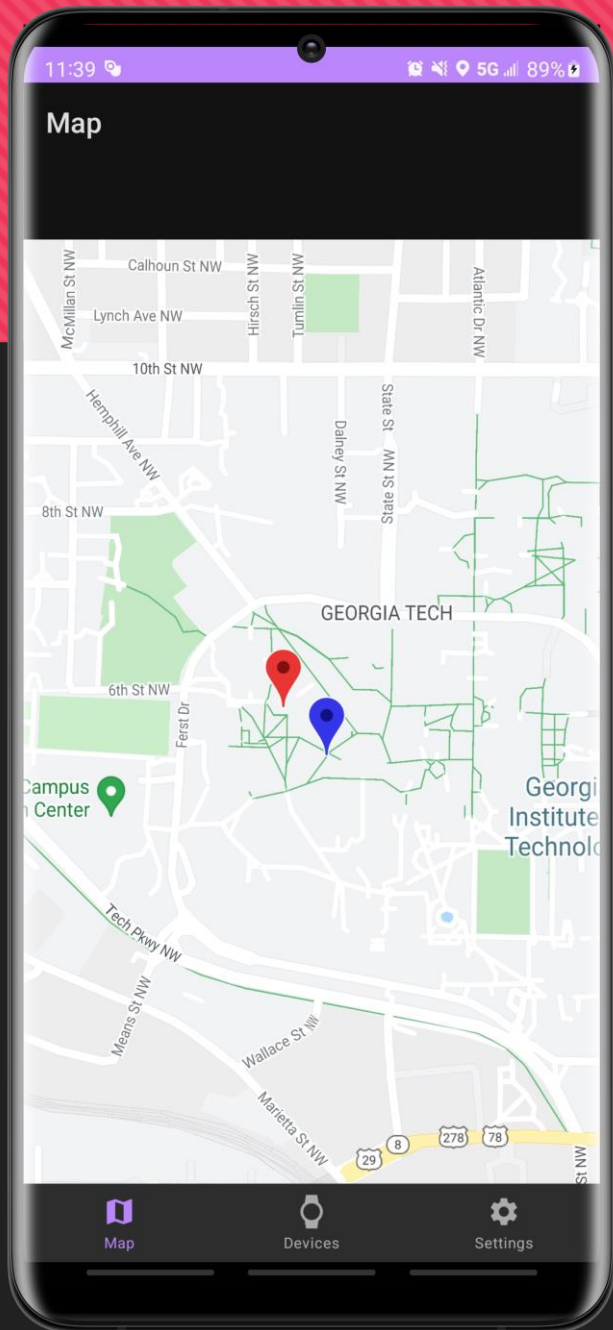




Mechanical Design

Electrical Design





Benchmarking – Lo-Fi Prototype

Outdoor Range (Line of Sight)



Competitor's
Ours
Specification

Indoor Range (Wall Penetration – Industrial)























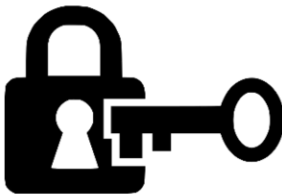





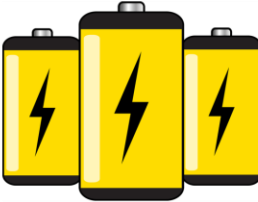


Indoor Range (Multi-Floor – Industrial)



Next Steps

- Give the mechanical package to parents for feedback
- Prove out GPS functionality and benchmark it against existing products
- Begin the miniaturization process

Local Wireless Communication Method	 Bluetooth Classic	 Bluetooth Low Energy	 MQTT	 LoRa	 zigbee	 Radar	 WiFi	 Nothing
Global Wireless Communication Method	 Cellular	 Low Frequency Radio	 Satellite	 Nothing				
Positioning Protocol/Specification	 GPS	 Ultra Wide-Band	 Bluetooth Low Energy	 Nothing				

Adjustable	 Watch Strap	 Elastic/Silicon Strap	 Helmet Clip	 Velcro	
Child-proof	 Magnetic Lock	 Lock and key system	 Complex clipping pathway	 Two-handed unclipping	
Aesthetic/Seamless implementation	 Bracelet	 Anklet	 Necklace	 Belt	 Scrunchie
Charging	 Solar Power	 Kinetic Energy harvesting	 Long-lasting Battery	 Pogo-Pin charger	
Removal Detection	 Continuous embedded Wire	 Magnetic separation detection in Clip			

				Direction of Improvement: Minimize (▼), Maximize (▲), or Target (x)	▲	X	▼	X	▼	▼	X	▼	X	X	▼	▲	▲	▲	▲
Row #	Max Relationship Value in Row	Relative Weight	Weight / Importance	Quality Characteristics (a.k.a. "Functional Requirements" or "Hows") Demanded Quality (a.k.a. "Customer Requirements" or "Whats")	Battery Life	Location accuracy	Heat Production	UL Certified	Volume	Cost	Range of fit sizes	Power Draw	Communication Frequency	Communication method	Time For Adult to don/doff	Time for Children to doff	Perceived Aesthetic Rating	Perceived Comfort rating	Location Method
1	9	7.8	5.0	Hard for Child for Remove						▲	▲				○	⊖	▲	▲	
2	9	6.3	4.0	Easy for Parent to Remove						▲	▲				⊖	○	▲	▲	
3	9	10.9	7.0	Comfortable			⊖		○	▲	⊖						▲	⊖	
4	3	15.6	10.0	Non-Choking				○	▲										
5	9	15.6	10.0	Safe to Wear			○	⊖		▲								▲	
6	3	10.9	7.0	Durable						○	▲						▲	▲	
7	9	14.1	9.0	Location Tracking	⊖	⊖				○		⊖	⊖						⊖
8	9	12.5	8.0	Easy access to data		▲							▲	⊖					▲
9	9	1.6	1.0	Aesthetically Pleasing	▲				⊖	○	○						⊖	▲	
10	9	4.7	3.0	Adjustability					▲		⊖				▲		○	⊖	
				Target or Limit Value	7 days	5 meters	Contact Temp under 75 degrees F	Certification	8 cm^3	\$100	Ages 2-10	6 mW	Optimized	Optimized	< 5 seconds	> 30 minutes	> 4/5	> 4/5	Optimized
				Difficulty (0=Easy to Accomplish, 10=Extremely Difficult)	10	3	6	5	6	4	2	10	3	1	3	7	4	6	1
				Max Relationship Value in Column	9	9	9	9	9	3	9	9	9	9	9	9	9	9	9
				Weight / Importance	128.1	139.1	145.3	187.5	67.2	120.3	170.3	126.6	139.1	112.5	84.4	89.1	64.1	182.8	139.1
				Relative Weight	6.8	7.3	7.7	9.9	3.5	6.3	9.0	6.7	7.3	5.9	4.5	4.7	3.4	9.6	7.3

