

WANDER

Product Requirements Document (v1.1)

OVERVIEW

Product Description	
Market Need	Parents with children too young to own a cell phone can get location information and notifications-based insight of their children's whereabouts while on vacation. Currently-available solutions are either expensive, require ownership & data-contracts, or impractical.
Key Features/ Functionality	GPS-over-cellular and location analytics coupled with human-based notifications that offers: <ul style="list-style-type: none">• Out-of-the-box connectivity• App-based or notification-based location• Insights into child's location history
Other Product Compatibility, Ecosystem, etc.	<ul style="list-style-type: none">• Cellular Connectivity• GNSS Compatibility• Mobile App• Manual sources of information (humans)
Stakeholders	
Target User	Children ages 4 to 10 years old, the elderly, and people looking to track their assets while out on vacation.
Target Purchaser (if different from user)	Parents, Guardians, Owners/Proprietors
Other Stakeholders	TBD

COMMERCIALS AND REGULATORY

Countries of Sale	United States
Target Launch Date	Q4 2019
Regulatory Requirements	
Safety (UL, CE)	Battery operated -- not required
Emissions (FCC, CE)	Pre-certified Modules <ul style="list-style-type: none">• uBlox SARA R410M• Generic MTK3339
Interoperability (Cellular, WiFi)	Cellular LTE-M
Labeling	
Regulatory Marks	FCC; identifier displayed on cellular module
Country of Origin	Made in China
Serial Number	Serial Number with QR code displayed on cellular module
Financials	
BOM Cost	N/A
COGs	\$196.80
MSRP	Free; on a rental-by-the-hour basis
Acceptable Margin	55% target margin; \$26,000 target P/L per Device
Volume	
MOQ of First Production Run	10
Annual Volume	N/A
Timeline for Product Refresh (EOL)	2 to 3 weeks depending on testing outcome and user feedback

ENVIRONMENT

Storage Environment	
Temperature Range	-30C to 75C
Humidity Range	0% to 95% RH
Operating Environment	
Indoor, Outdoor, Wearable	Indoor, Outdoor, Contained Unit
Temperature Range	-40C to 85C
Humidity Range	0% to 95% RH

INDUSTRIAL DESIGN

Brand	Push a button, find your kid.
Picture	
Color, Material, and Finish (CMF)	Nylon 12 -- (gray, dyed)
Logo size and placement	Embossed into top surface of the enclosure
Connectors (Power, USB, Lighting, Audio)	Micro-USB
Visual Interface (Screen size and type, LEDs)	Red charging LED, RGB status LED, red GPS FIX LED
Touch Interface (Mechanical actuators/switches, touch sensitivity, haptics)	None
Audio Interface (Microphones, speakers)	None

SOFTWARE ARCHITECTURE AND DATA PROCESSING

Block Diagram of Data Flow

ELECTRICAL HARDWARE AND SENSORS

Block Diagram of Electrical Hardware	
Input/Sensor Requirements	None
Output/Actuator Requirements	None
Critical BOM Components	<ul style="list-style-type: none">• Cellular Module• GNSS Module• Battery
Communication Requirements	CoAP over DTLS over UDP; 397ms round-trip
Power Requirements	<ul style="list-style-type: none">• Rechargeable Li-Poly Battery• 28hr Runtime• 1080mAh

DURABILITY

Lifetime requirements	3500 uses; ~4 years
Cycles of various sub-systems	≥ 500 battery charge cycles
Chemical Resistance	Superior (PA12)
UV resistance (sunlight)	Superior (PA12)
Environmental (Dust, Water, etc.)	IP68
Mechanical (Drop, Vibration, Abrasion, etc.)	The device must withstand a fall from 15ft onto concrete in six different orientations

PACKAGING

In the Box	<ul style="list-style-type: none">• Pre-assembled E-Series LTE + Adafruit GPS MTK339• Battery (1080mAh)• Taoglas Ultra Wide Band Antenna
Unboxing Experience	No packaging and custom installation necessary
Printing, colors, inserts, cardboard type, drop requirements	None
Retail Requirements	N/A (sold at kiosk)
SKU Combinations	1

SERVICEABILITY

Repair Services	Full replacement handled by the team
Returns Process	Users can contact the team for any grievances regarding the product
Repair/Return Qualifications/Tolerances	Faulty product is subject to replacement and refurbishment
Customer Support System	Phone, text, or email