

The background of the slide features a wide-angle photograph of a mountain range. The mountains are rugged with patches of snow on their peaks and ridges. The sky above is a clear, pale blue.

TEAM 4

Trail Guard

Wayne Tsai

Joyce Chou

Katherine Chen

Hazel Chen

<https://github.com/TrailGuard>

PROBLEM STATEMENT



Outdoor enthusiasts such as hikers, climbers, and backpackers often lose communication and tracking ability in remote areas due to poor cellular coverage, short battery life, and the high cost of satellite devices. There is a need for an affordable, lightweight, and long-lasting solution that ensures safety and connectivity off the grid.



SOLUTION DESCRIPTION

A RELIABLE OFF-GRID COMMUNICATION & SAFETY DEVICE FOR OUTDOOR ADVENTURES

TrailGuard is a compact, low-cost communication device designed for hikers exploring areas without cellular signal. Using LoRa-Mesh technology, it enables group members to share real-time locations, exchange messages, and stay connected off-grid. With its long battery life and affordable design, TrailGuard offers a more accessible alternative to traditional satellite-based systems, enhancing safety and communication for outdoor adventurers.

KEY FEATURES



OFF-GRID MESSAGING

- Send short messages to group members (e.g. “SOS”, “Wait for me”, “Going ahead”)



LOCATION SHARING

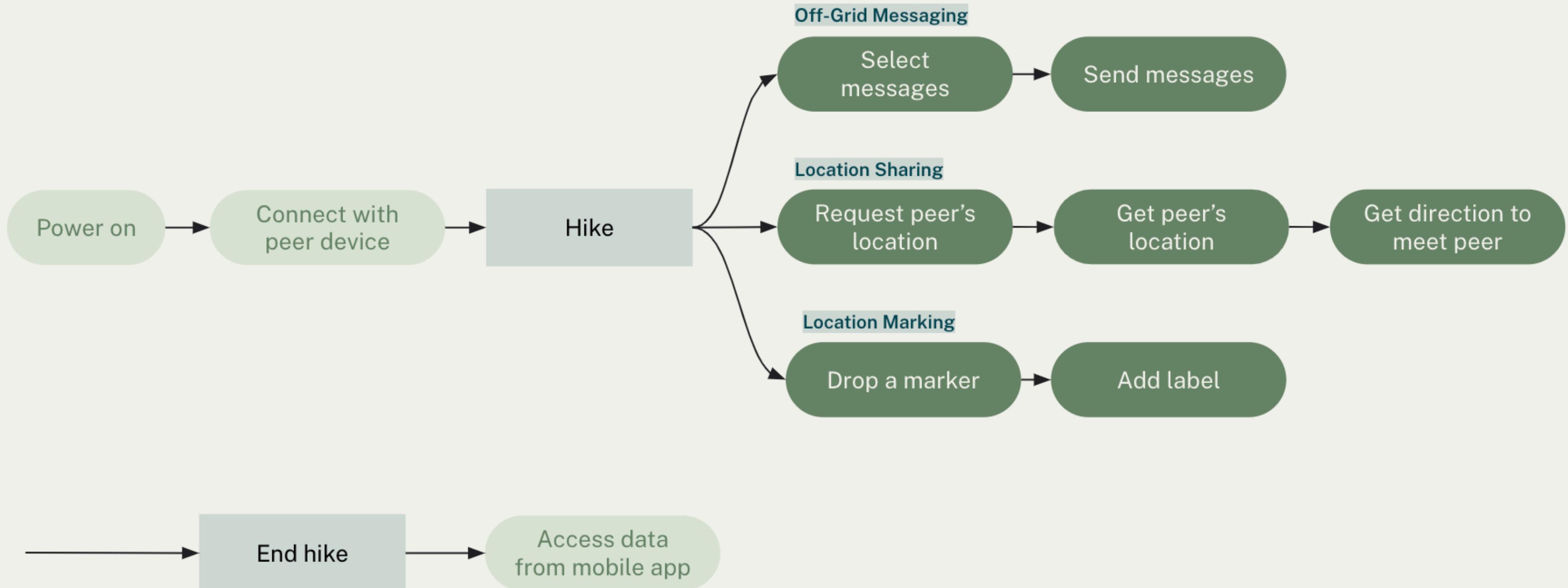
- Send location among group members
- Alert if someone falls behind
- Navigate to peers



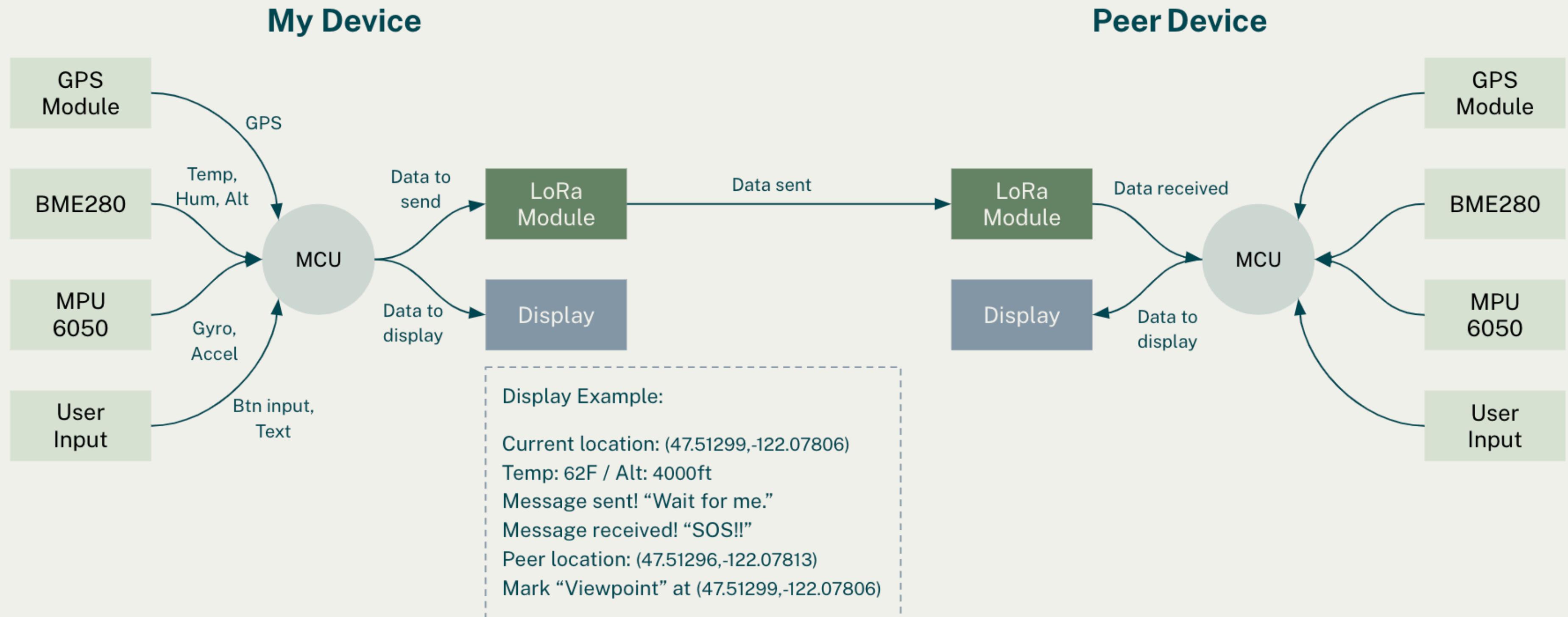
LOCATION MARKING

- Drop custom markers (e.g. “Rest spot”, “Water source”, “Caution zone”)
- Support peers and future communities

USER FLOW DIAGRAM



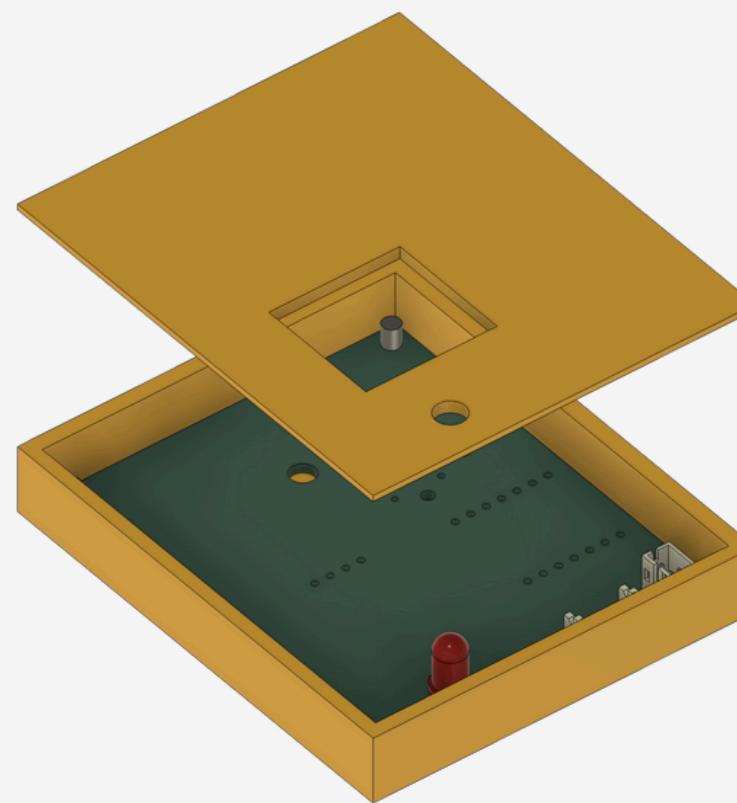
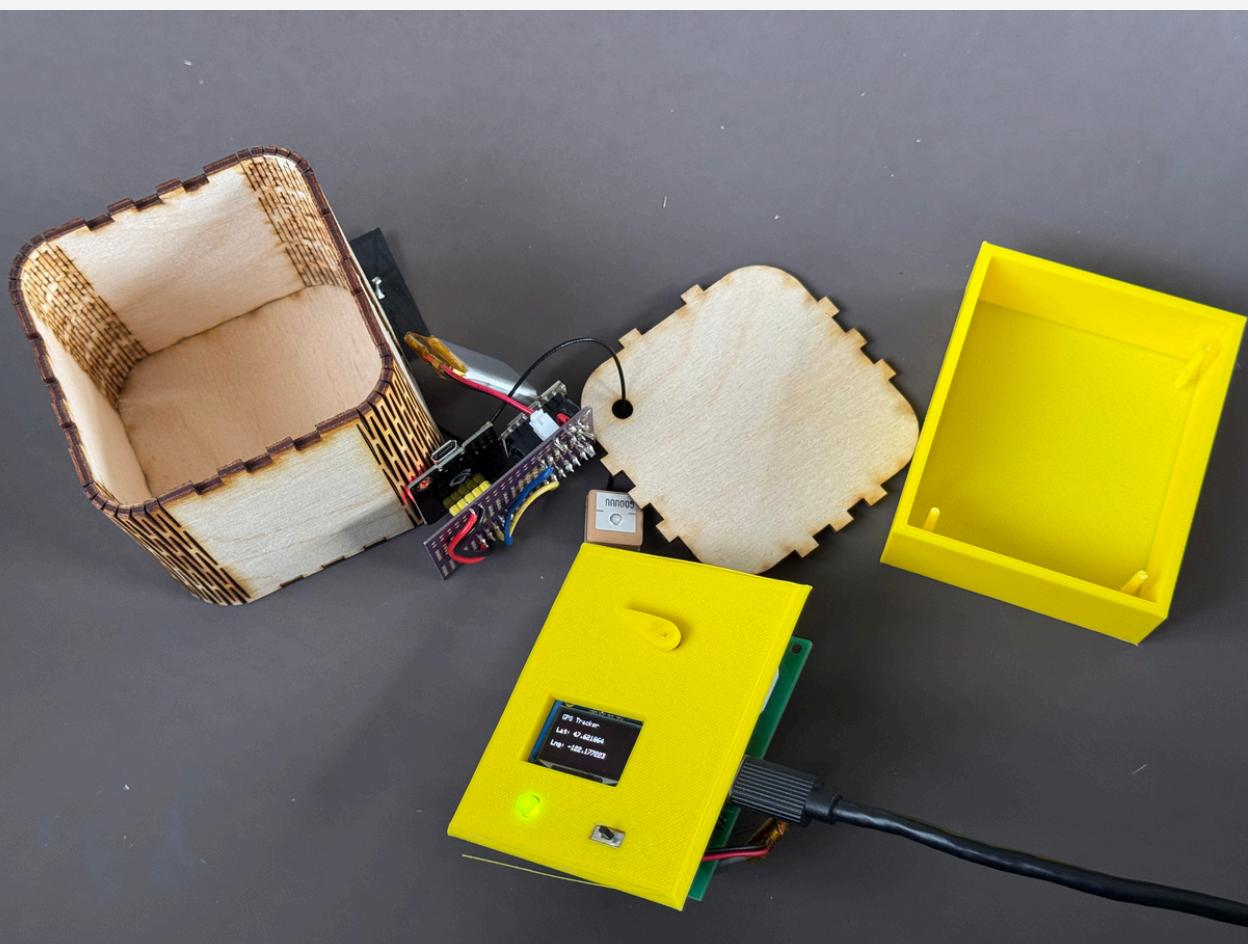
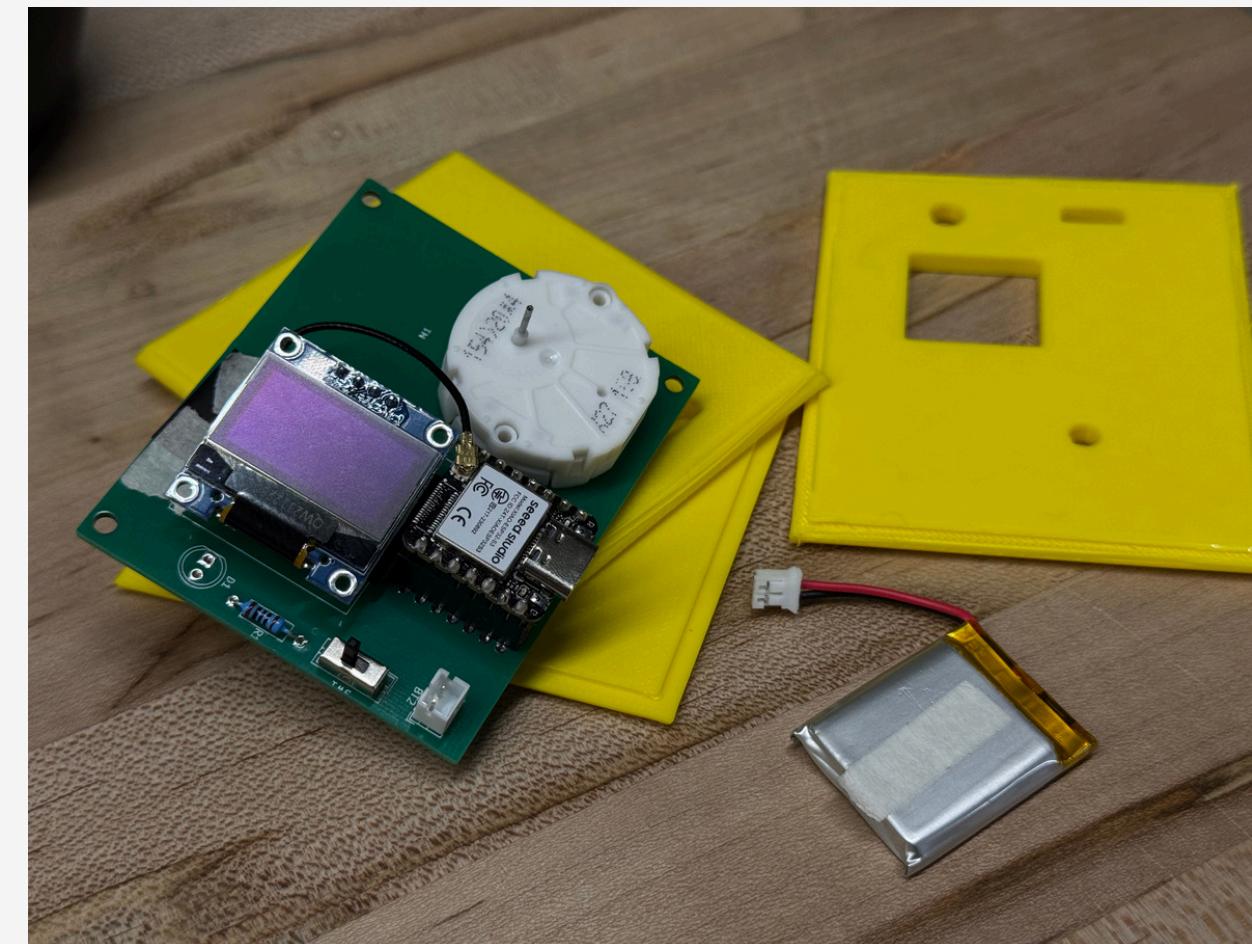
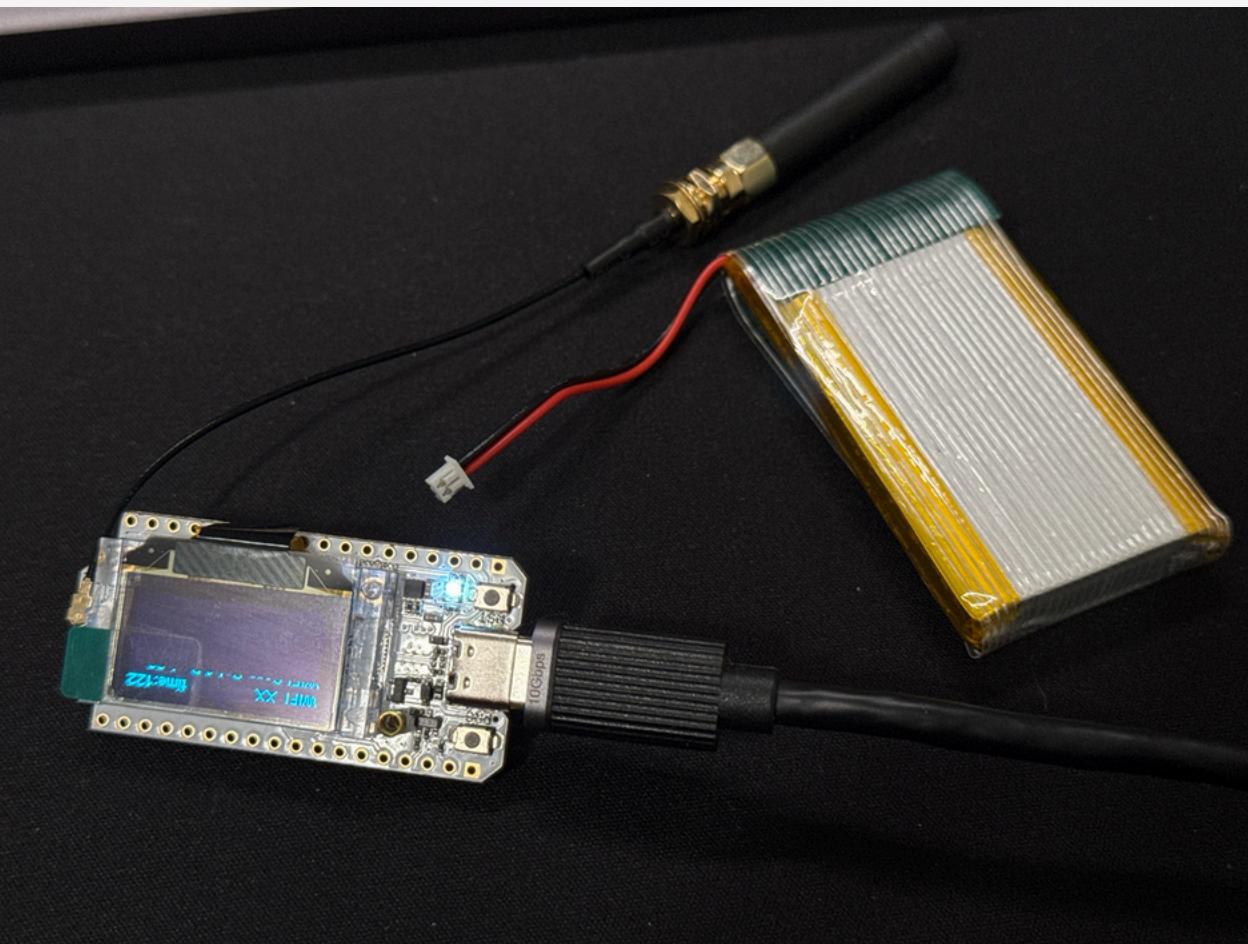
DATA PIPELINE



BUDGET UPDATE

ITEM	QUANTITY	PRICE	REMAINING BUDGET (TOTAL: \$350)
SenseCAP Indicator for Meshtastic® & LoRa®	1	\$47.90	
SenseCAP Card Tracker T1000-E for Meshtastic	1	\$39.90	
			\$262.2

PICTURES



A wide-angle photograph of a rugged mountain range. The mountains are covered in patches of white snow and dark, rocky terrain. The sky above is a pale blue-grey, filled with soft, billowing clouds that sit just below the mountain peaks.

THANK YOU.