Problem:
- On treks, large groups are unable to stick together due to network issues that prevent them from using mobile phones
- On school excursions, children do not have access to phones and also tend to run around so the teacher has difficulty in finding them
- In music festivals, due to cell tower congestions and loud noise, groups of friends are unable to connect to each other and be together

Currently available systems can track the location of people indoors using fixed gateways.Outdoor positioning systems rely on GPS location along with some form of internet/cellular connectivity to send their location to centralised controller/server, this does not have a problem with range, but if cellular range is unavailable(due to lack of cell tower or congestion), it fails.

Functional Specification:

Coordinator configures master band to identify all the bands in its network - blue lights indicate the users that have been identified

Scenario 1: All group members are within specified range of Leader 'A'
- Lights on A's band will glow green

Scenario 2: Some members are on the boundary of A's range
- A's display will show the members which are on the boundary

Scenario 3: A member 'C' is out of A's range but in the range of some other group member 'B'
- A's display will show that C is not in their range, but is in B's range

Scenario 4: C is out of everybody's range
- A's display will show that C is not with the group anymore

Technical Specification:
Hardware: ESP 32
Xtensa® Dual-Core 32-bit LX6 microprocessors, which runs up to 600 DMIPS.
4MB of Flash ROM for application code
448 KB of ROM for booting and core functions
8MB SRAM
Language: Embedded C