Helium Coverage Mapper

Provided by IoWE for IoWE configuration spec; your mapper may vary.

Introduction

The Helium coverage mapper provides network coverage data by intermittently attempting to obtain and transmit GPS coordinates over LoRaWAN via Helium hotspots. All the user needs to do is plug in the mapper to power using a micro USB cable.

Operation

The device will power on and begin to cycle through the following:

1. *Joining* - This means the mapper is attempting to join the Helium network by broadcasting to surrounding hotspots. This usually only needs to happen once per "session". If there are no hotspots available in your surrounding area, the device will not be able to join the network. Also be aware that it is possible hotspot owners have illegitimately set the location of their hotspots; just because Helium explorer shows a hotspot at a location does not automatically mean it is physically there.
2. *GPS Searching* - The mapper is trying to find a GPS satellite signal to obtain location coordinates. It is not unusual for this to take some time and signal will vary per location.
3. *Sending* - Once GPS coordinates are obtained they will be broadcast over LoRaWAN to any area hotspots that may be in range. **Note that there are countless environmental conditions that could lead to any given broadcast being heard or not heard by area hotspots, even from the same location. These include but are not limited to:**

a. **Range / Distance / Line of Sight**
b. **Buildings / Geography / Terrain (hills, valleys, etc.)**
c. **Hardware variability (Antennas, lack thereof, etc.)**

Viewing Data

There are two ways to view the data from your mapper:

- cargo.helium.com
  - Cargo will let you filter on your device ID and see your real-time location data as it comes in over Helium hotspots. This data will only last for a short period of time and goes "stale" and will not show indefinitely. Cargo also does not show hotspot locations, and you can toggle the aggregate coverage data on and off ("Community Map" toggle).
- mappers.helium.com
  - Mappers data is delayed from the time of reporting and updates data every 6 hours. This data does not show live location information, and will only add coverage to a hex on the map if it has not previously been added there. This *does* show where hotspots are (pink dots).

LED Indicator Lights

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RGB red means sending;
RGB purple means joined done;
RGB blue means RxWindow1;
RGB yellow means RxWindow2;
RGB green means received done;
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