Title

Integrate Meshtastic Devices into a Flutter App

Description

I have a Flutter (iOS and Android) app that needs to integrate with Meshtastic devices to share data when there is no network. This includes connecting to the devices via Bluetooth and then sending basic communications to the mesh network at regular intervals.

https://github.com/paulocode/multimesh is a sample of a standalone app that does WAY more than I need.

Project Requirements:

1. **Connect Screen:** A screen where the user links their device to a Meshtastic radio.

   Conduct necessary permission tests.

   Allow the user to connect their device to the radio via Bluetooth.

2. **Messaging Screen:**

   Provide a set of precanned messages that users can send over the network.

   Send GPS data and basic communications through the app at regular intervals (e.g., every 15 seconds).

3. **Map Screen:**

   Display the GPS location of all connected mesh devices on a map.

4. **Configuration Management:**

   Handle most configuration settings provided by Meshtastic, locking the user into LoRa settings.

Additional Context:

The app is designed for groups of people traveling together (e.g., a caravan).

The group leader will distribute Meshtastic radios to each member, who will then connect via Bluetooth Low Energy (BLE) to a device in their vehicle and share GPS data.

The leader sets an encryption key, channel, and transmission pattern via a web interface when creating a trip.

Invitations to join the trip will include a link to download the app and the necessary connection information.

The app will store the shared info in SharedPreferences.

Permissions and Connections:

When connecting to a radio, the app should:

Confirm the pairing code to ensure the correct connection.

Request permission to collect GPS data.

Request permission for Bluetooth scanning and connection.

Store the necessary connection info and set up autoreconnect.

Data Handling:

Build a class to handle connection management, set up a stream to collect data from other radios, and provide a `sendMessage()` method to send data over the network.

Example of data sent every 15 seconds:

```json
{
  "lat": 12345,
  "lon": 92.345,
  "alt": 12,
  "heading": 93,
  "speed": 34,
  "data": "OK"
}
```

This data should be base64 encoded.

Development and Testing:

I can provide the current Flutter code for integration.

Testing the code requires two devices on hand. Devices can be purchased from Amazon, and arrangements can be made for dropshipping if necessary.

Timeline and Budget:

The project is in its early stages, and the timeline is flexible.

The goal is to establish a longterm working relationship, though no promises can be made at this stage due to the early nature of the project.

Next Steps:

Provide an estimate for the project based on the outlined requirements.

Potentially arrange for purchasing and shipping of necessary Meshtastic devices for testing.