Follow Upets - Collar

This project is part of a C.S department course assignment.

The assignment is to think of a product that will help people in their daily lives, and to develop a prototype of the product.

The product we chose to develop is a collar for pets that will help the owner to track the pet's location and communicate with it.

Description:

Pets have evolved into cherished family members, providing joy and unconditional love.

The fear of losing them is a distressing reality for many pet owners. But with the revolutionary Follow Upets Collar, utilizing advanced GPS technology, you can track your pet's real-time location, ensuring they never go astray.

Moreover, the collar's audio module enables remote communication with your furry friend through voice commands or pre-recorded messages, granting peace of mind from anywhere in the world.

Features:

💎 **Real-Time GPS Tracking:** The Follow Upets Collar employs advanced GPS technology to track and display your pet's live location on the mobile app. Stay informed about your pet's whereabouts at all times.

💎 **Last Known Location:** The collar's GPS module stores the last known location of your pet. If your pet goes out of range, you can still track their location and find them.

💎 **Voice Recording Storage:** Store personalized voice recordings on the collar. Record comforting messages or commands to communicate with your pet.

💎 **Voice Message Playback:** Send stored voice recordings to your pet through the collar. Deliver affectionate messages, cues, or reassurance from afar.

💎 **Easy To Use:** The collar is designed to be user-friendly and intuitive. The app is simple to navigate and provides a seamless experience.

Hardware:

⚙️ Raspberry Pi Pico: The main microcontroller and foundation for the IoT project.

⚙️ Male Header Set for Raspberry Pi Pico x2: Those male header pins are used to connect the Pico to the Waveshare board and to the notecarrier.

📡 Blues Notecard (Cellular): The Notecard is a small, low-power cellular IoT card that adds wireless connectivity to the Raspberry Pi Pico.

- The Notecard has a SIM embedded in it and is used to send and receive data from the cloud.
- This Notecard is also Geo-aware, meaning it can be used to get the device's location.

- This Notecard uses LTE-M, NB-IoT, or Cat-1 cellular networks, so it can be configured to work in most countries.

> The Notecard is connected to the Pico via the Notecarrier-A.

⚙️ **Blues Notecarrier-A**: The Notecarrier-A is a Raspberry Pi add-on board that allows you to connect a Notecard to a Raspberry Pi Pico.

> The carrier is connected to the controller as a HAT.

🔊 **Waveshare Audio Expansion Module**: The Pico-Audio-Exp module is an audio expansion module that provides audio functionality to the Raspberry Pi Pico.

> The Audio Module is connected to the Pico via onboard female headers for direct connection to the Pico's Male headers.

🔋 **14500 Li-ion Battery**: A battery is used to power the device.

> The battery is connected to the Pico via a battery holder.

⚙️ **Battery Holder Power Module**: The battery is held in place by a battery holder that is connected to the Waveshare board.