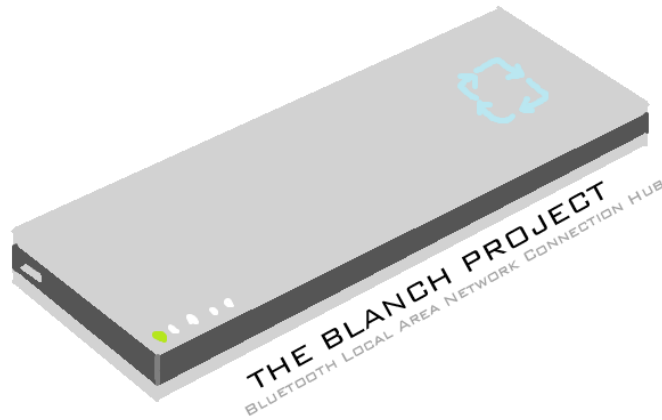


PROJECT BLANCH

The Bluetooth Local Area Network Communication Hub



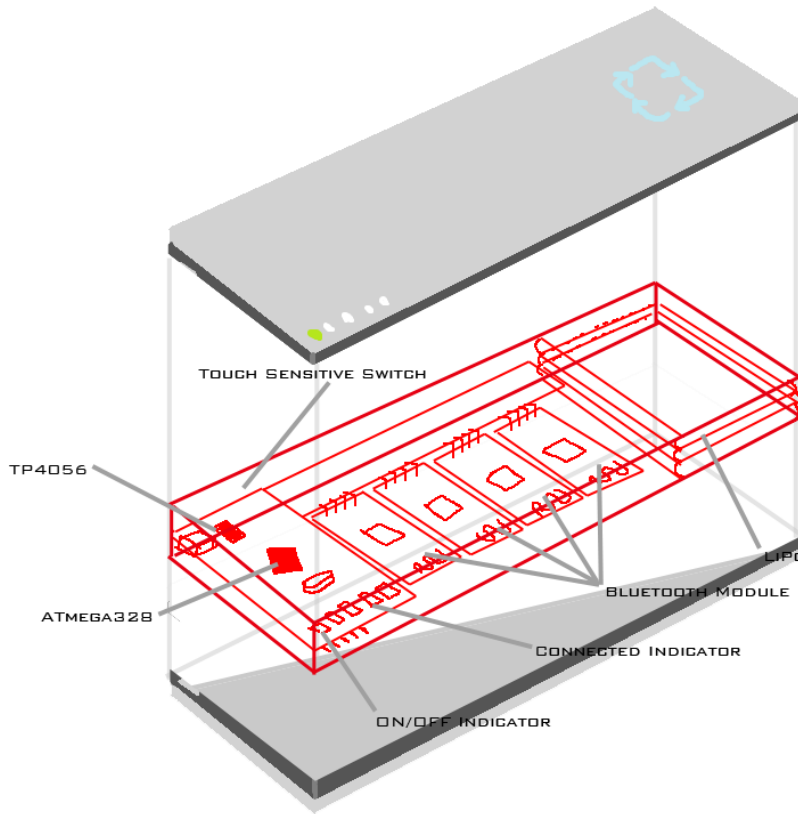
Description

THE BLANCH is a bluetooth based communication hub for making bluetooth with some properties of UDP and TTL. The 1st Prototype of BLANCH will allow up to 4 players (or client) to connect to the Hub. The Hub will act as a mirror, all the data will be instantly reflected to other player (client) in real time for sync. This items was inspired by NDSL's multiplayer function.

Aim

Currently, most of the mobile game are online based. There is not much games that allow local multiplayer. By introducing the BLANCH, people can share data without accessing the internet, play games together and not occupying the Wifi Module in smart phone. Provide an alternative way for multi connection with low ping and small data transfer.

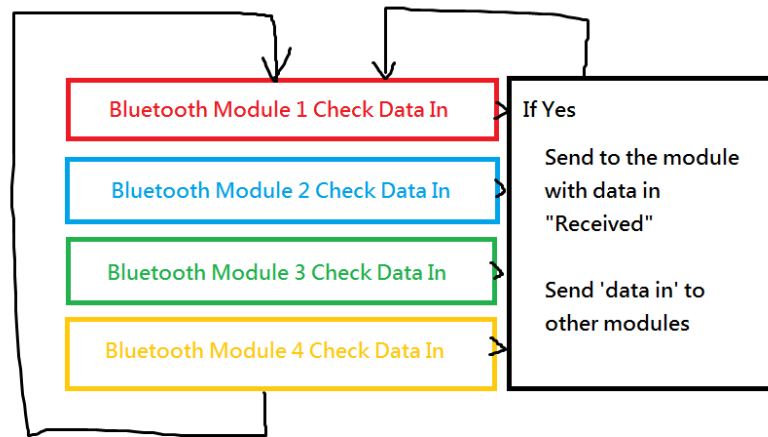
Hardware Layouts



Specification

Expected Running Time	10 hours with 2 players 4 hours with 4 players
Battery Capacity	2100 mAh
Main Controller	ATmega328
Charging Controller	TP4056 (1A Linear Charger)
Bluetooth Modules	HC05 / HC06 x4
Number of Client Connection	4 (Host, P1, P2, P3)
Buttons	Inductive Touch Sensing Switch
Indicator	Power x1, Connected x4

Embedded Software Workflow



The BLANCH System was a Bluetooth data reflector that act like ArOZ System.

The protocol works as follow:

[UUID][display name][content{array 1, array 2,...}][end signal]

The system will return the protocol as follow:

[Hub_UUID][received signal][end signal]

The Embedded system will work as simple as copying the data in from one of the module and send it out on other modules. A “Received” Signal will be sent to the Bluetooth module with data in to confirm the data in was well received by the BLANCH. The software only need to send the datastream that have to be sent to other client via bluetooth, the system will automatically handle the rest.

Mobile App and API

1. Testing and Debugging Application

- Mainly consists of a connect button, a textbox for input, a send button and a giant textbox for console log. When the send button was pressed, the text in textbox will be sent to the bluetooth receiver and wait for a "Received" signal.
- This apps was intended to use for debug only. It also can act as a chatroom or base64 image / audio transfer (TO BE CONFIRMED)

2. Demonstration Game Application

- A Game with simple character that can perform up down left right movement in a small area
- When the application started, user can choose between host or join. If host, the user will send the name of the UUID of the smartphone, username, game name with an interval of 10s to the BLANCH system.
- If the user select join, the user's smartphone will connect to the BLANCH and wait for a signal that shows the host exists.
- After there is more than 1 players, the host can start the game and two player will be moved into a small room where user can control the character to move in 4 directions
- The movement of the user is instantly updated to the other's smartphone via BLANCH
- A chest in the center of room can store 3 items. User can select what item to put in and take out while the chest content is also updated to all user's application.

Project Value

- Accessories for consumer to purchase when they want to play a certain game -> Commercial value
- Increase communication between people around with multiplayer gaming
- Compactable for easy connection to DIY IoT Devices -> Provide simple API and infinit extendability for the project
- Offline communication -> hiking / camping's data sharing etc.
- Even if the idea failed in competition, it can be reused as a Kickstarter / Indiegogo Project in the coming year.

