

Walkie-Talkie App.
upon Android devices

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Agenda

- Goal & Motivation
- Walkie-Talkie Communication
- Audio Recorder
- Interface Setting & Demo

Goal

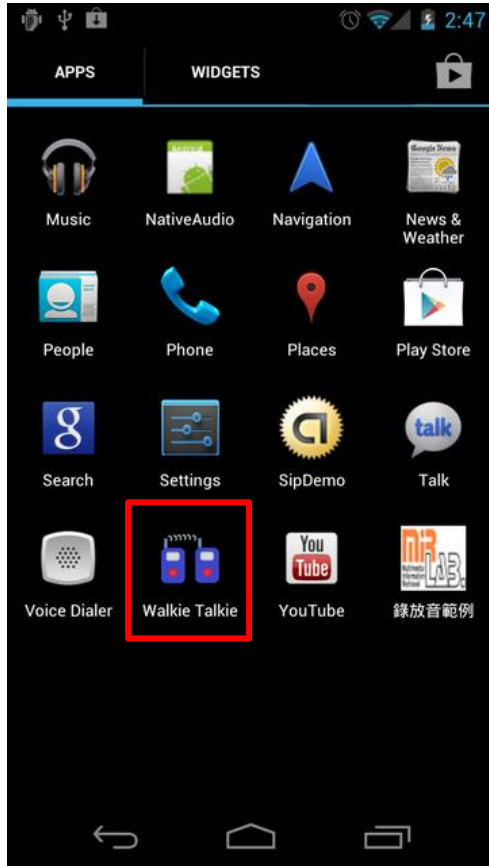
- Fully utilizing Wi-Fi Direct
- Transmitting audio files(.wav) in real-time
- Grouping available peers

Motivation

- How do we communicate with other peers in a secure manner with off-the-shelf devices where there is no Wi-Fi connection?
ex) tactical military mission, rescue mission
- No extra cost (\$\$) to talk with others by using this application

👉 Wi-Fi Direct!!

GUI



Virtual Freq.(1):
Like Real Walkie-Talkie's
Communication
Frequency

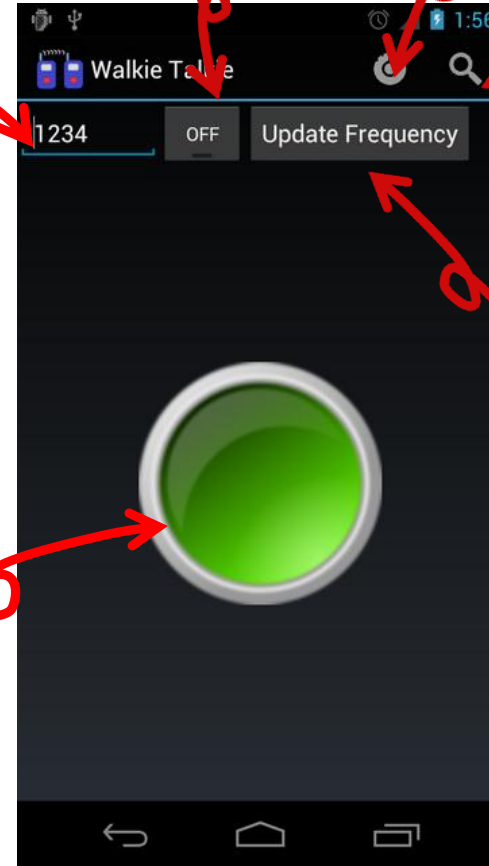
On/Off button(2):
Connect and find
peers

Wifi Setting(5)

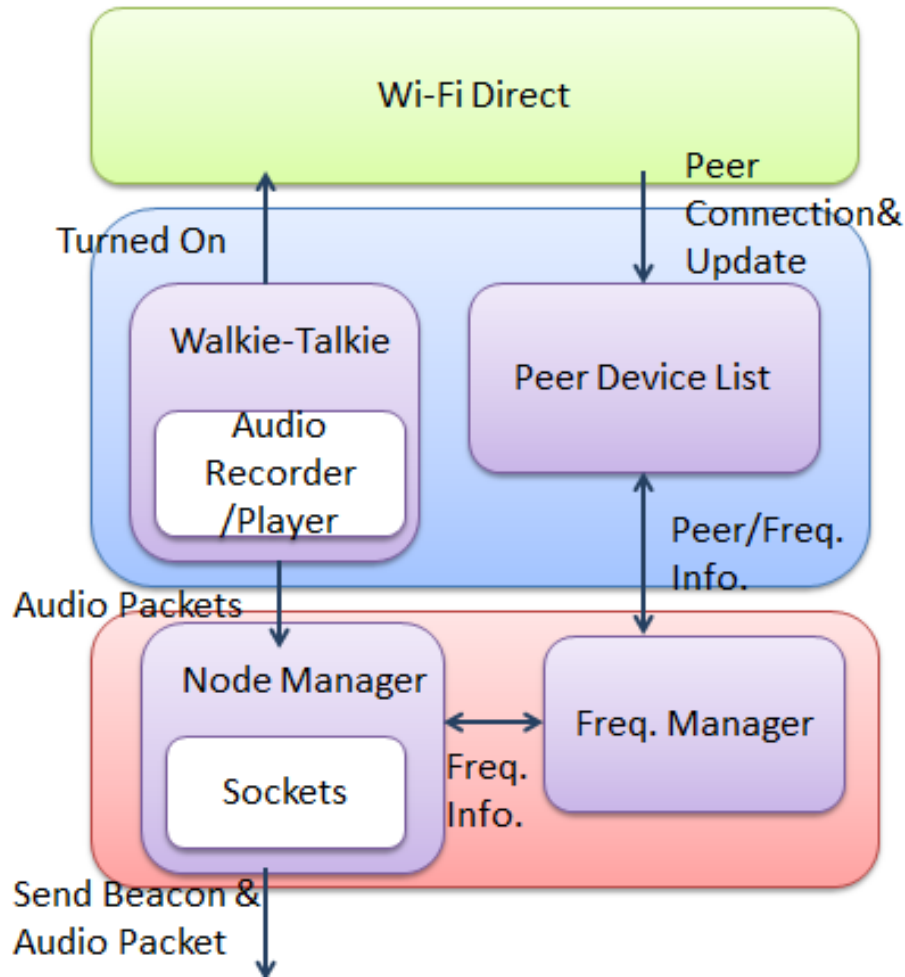
Peer List(6)

**Update
My Virtual
Freq.(4)**

**Talk
Button(3):**
Push to Talk

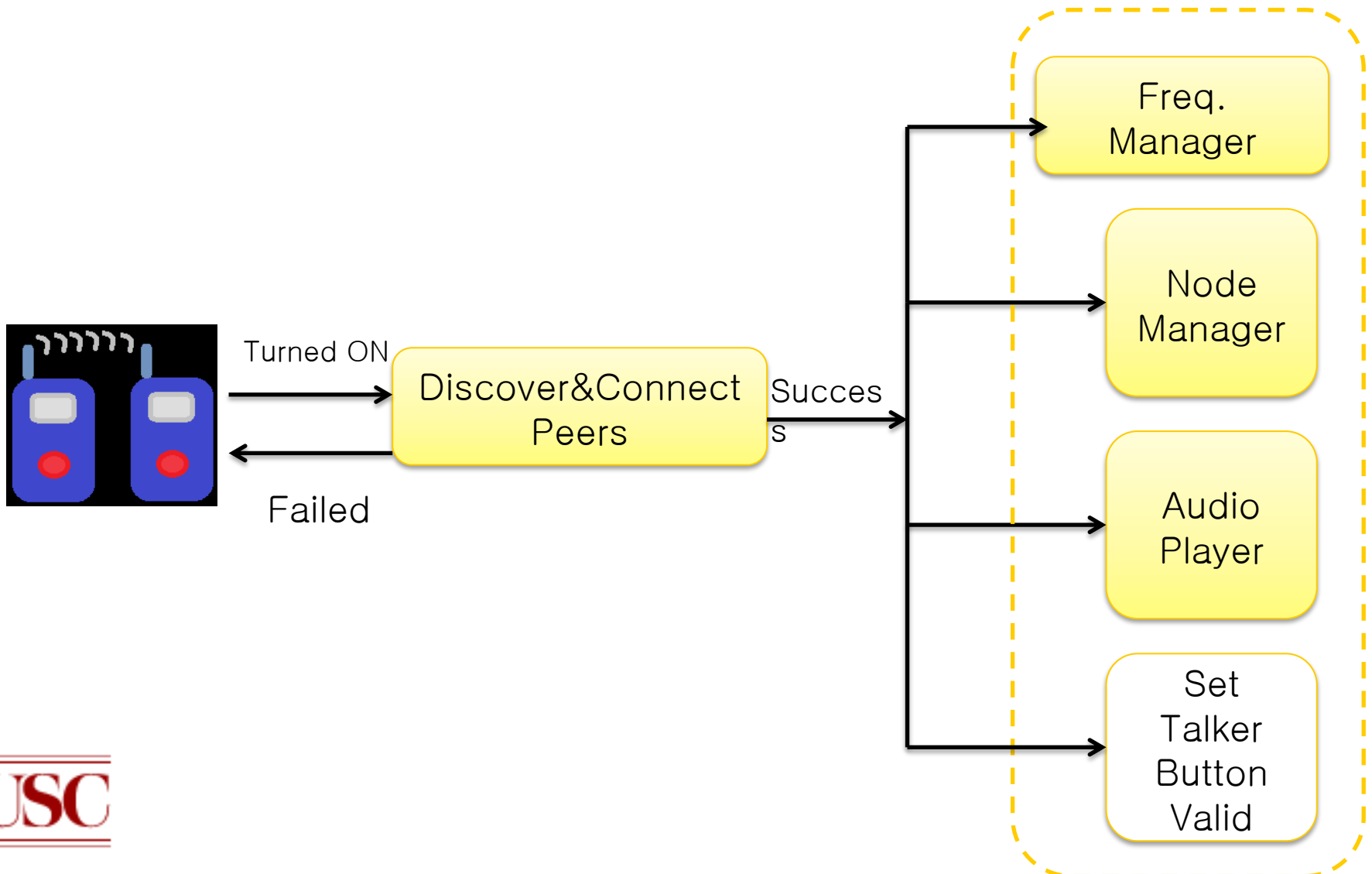


Walkie-Talkie Design Diagram

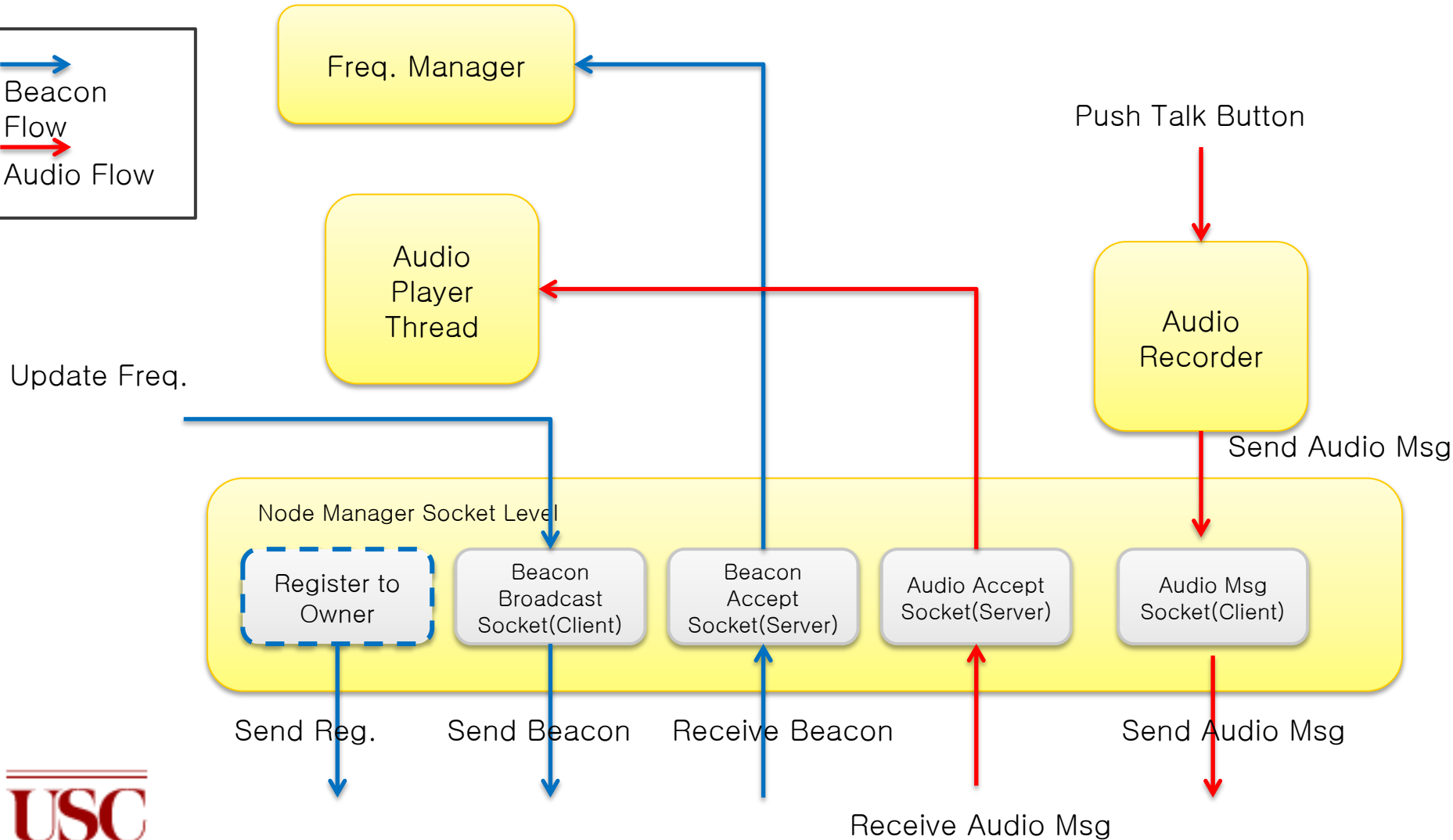
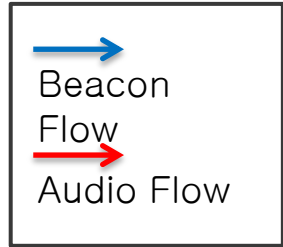


- **Wifi-Direct:** Discover peers; Handle connections and peer status
- **Walkie-Talkie:** All GUI; Handle virtual freq. input and update; Push to talk and voice recorder.
- **Peer Device List:** Display and maintain peer status list.
- **Freq. Manager:** Maintain virtual freq. and IP address
- **Node Manager:** Represent each device to communicate with others.

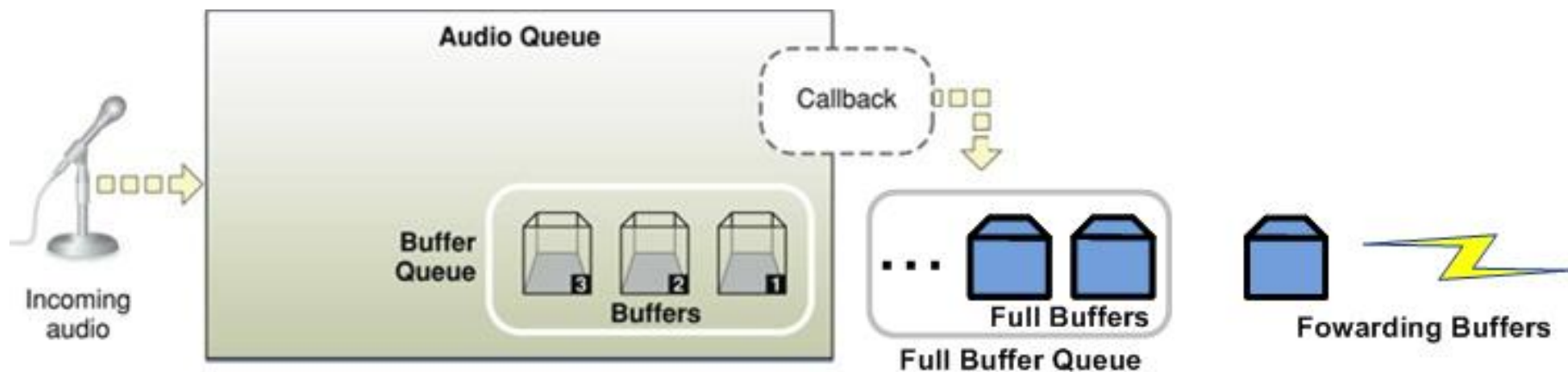
Walkie-Talkie Flow Chart



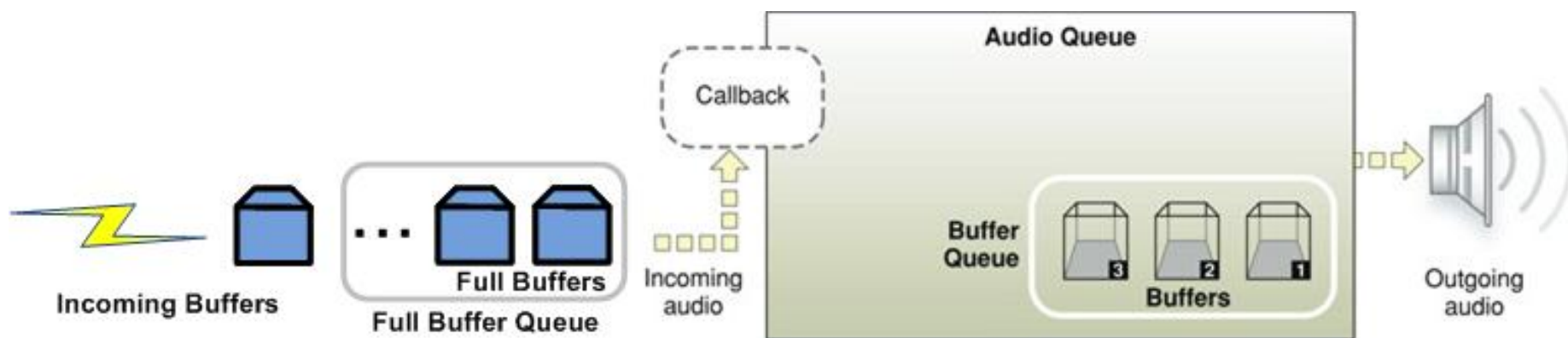
Walkie-Talkie Flow Chart



Recorded full audio buffers are polled by Callback in real time



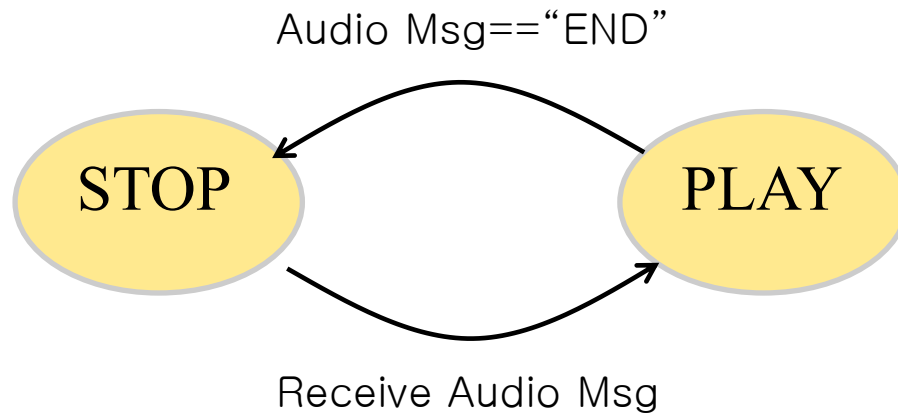
Audio buffers are played back by Callback in real time



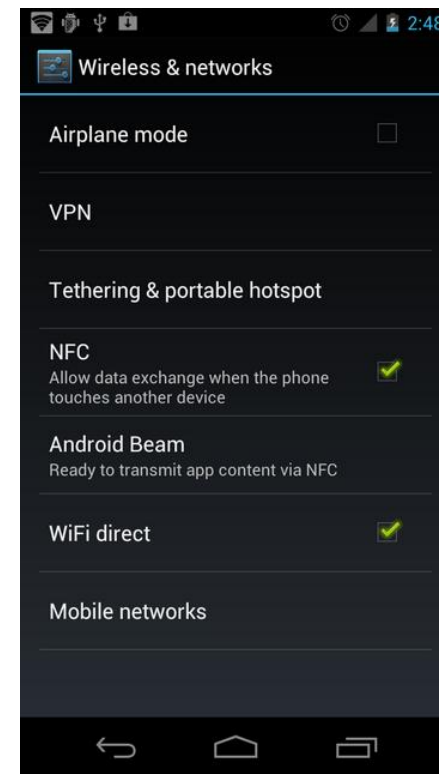
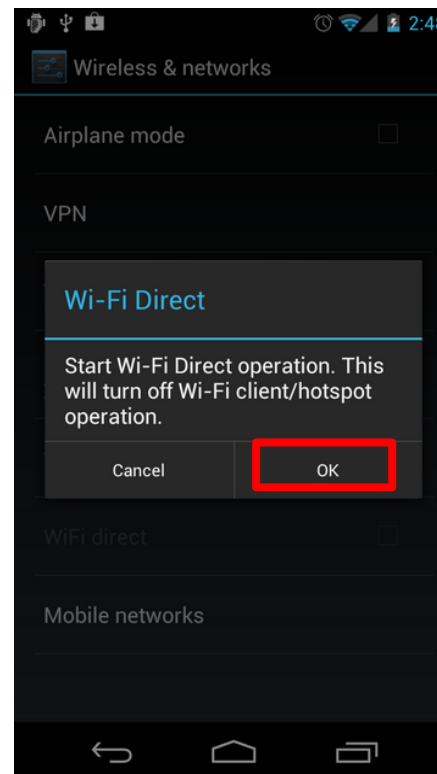
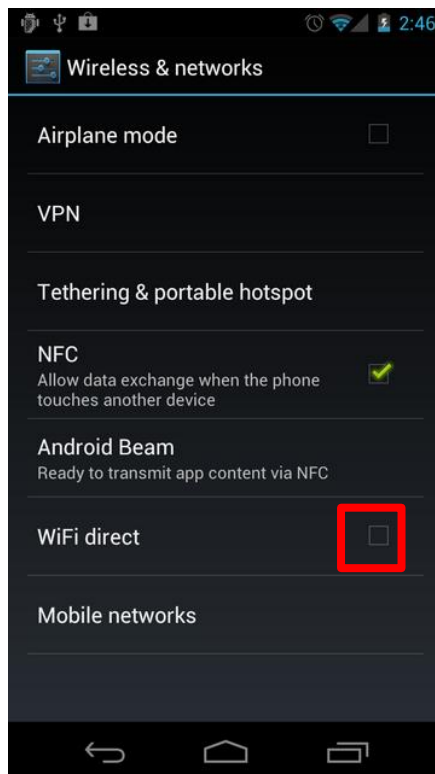
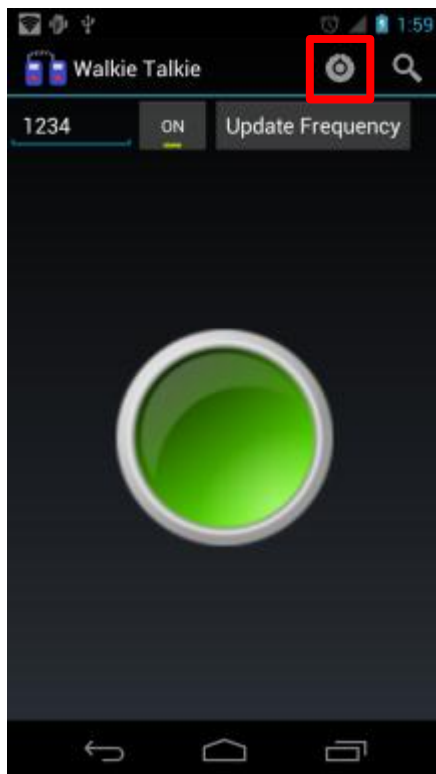
Audio Echo



- Receiver hears Echo at the end of audio message
 - “End” message to STOP audio player to reduce Echo.
- Receiver START audio player when receiving audio message



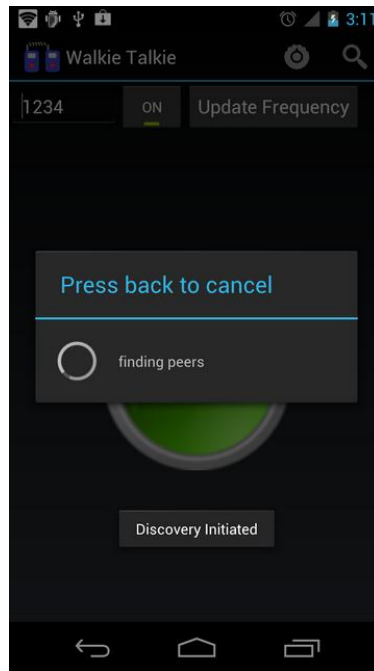
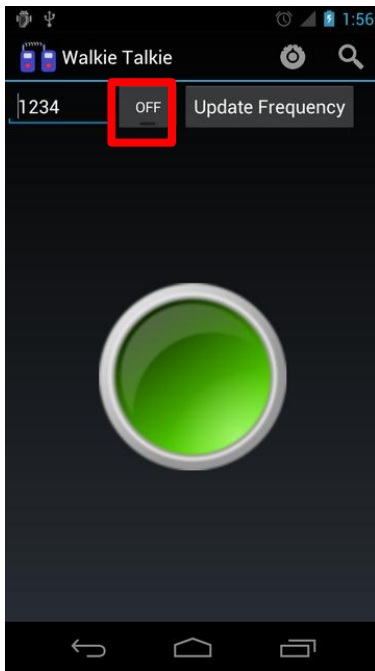
GUI: Wifi-Direct Setting



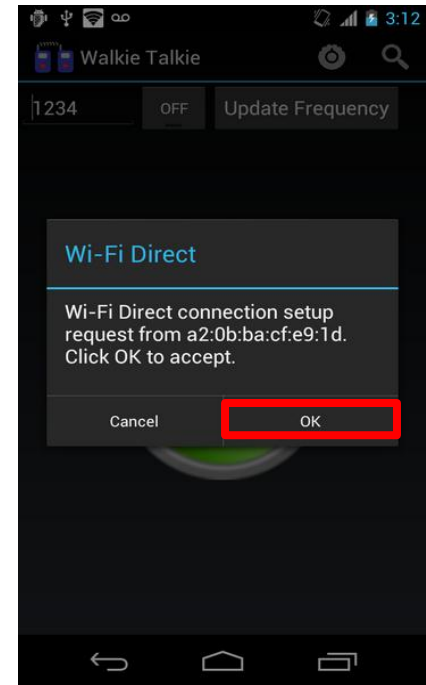
GUI: Connecting



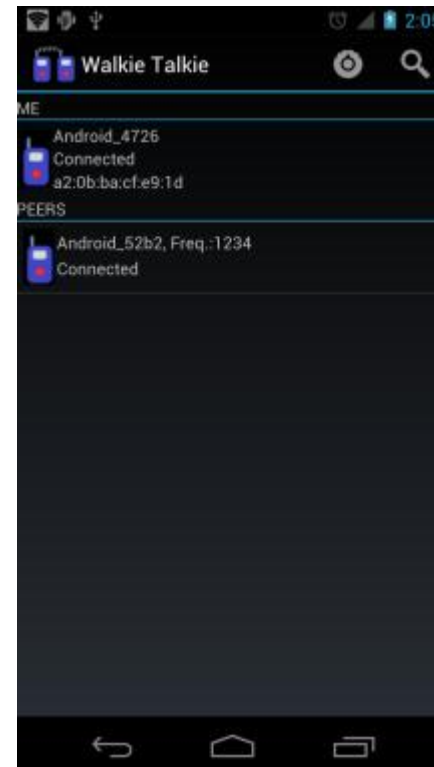
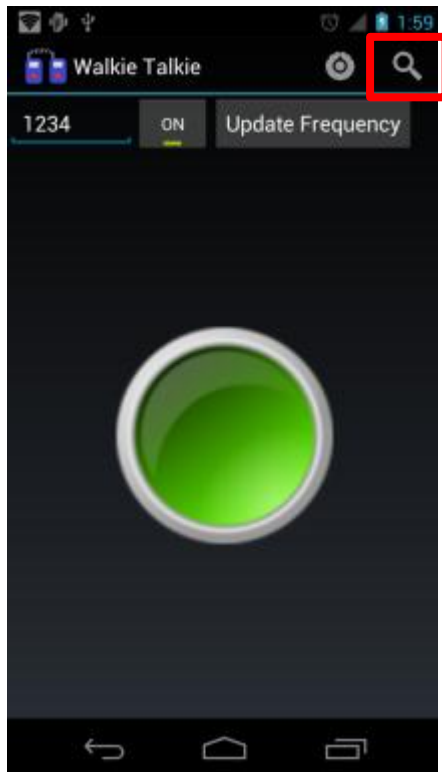
Phone 1



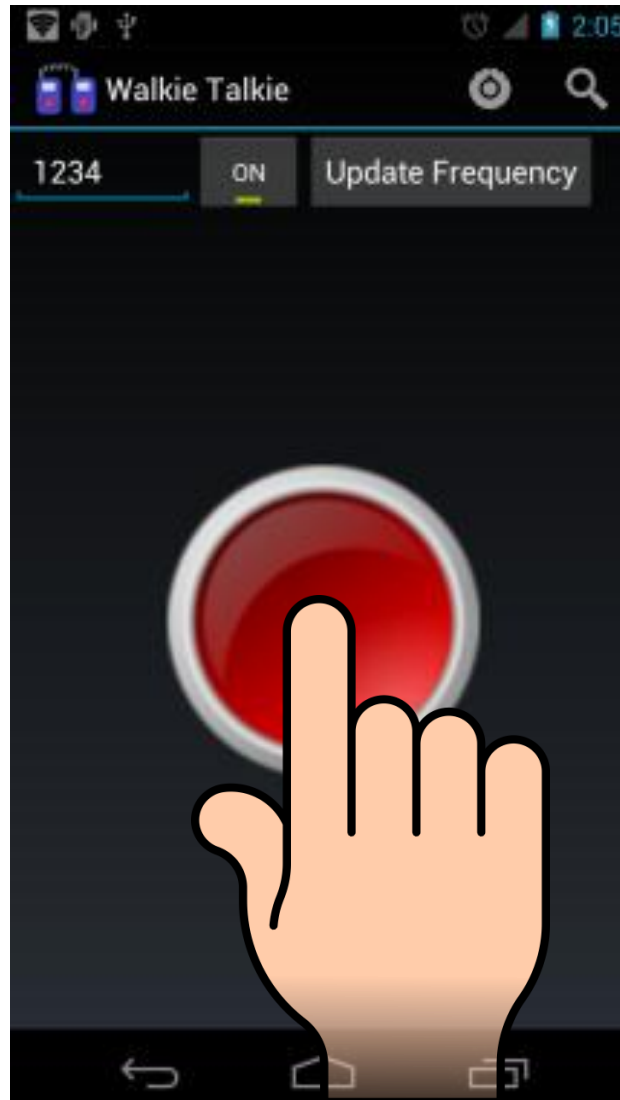
Phone 2



User Interface: Check My Peers



User Interface: Talking



DEMO



<http://youtu.be/Yi5IPvWmtqU>



Q & A

