Android Walkie Mesh
Design Documentation

by

CIA

Create, Improve, Accomplish

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Change Log

Version	Date	Comment
0.1	26/07/2013	Init version with outlines
0.2	26/07/2013	Added draft use case diagram and interface design
0.2.1	27/07/2013	Added more document structure and fleshed out interface design
1.0	27/07/2013	Final content added and polished.
2.0	25/08/2013	Updated for iteration 2
3.0	22/10/2013	Updated and finalized

Table of Contents

1. Use Cases

Call contact

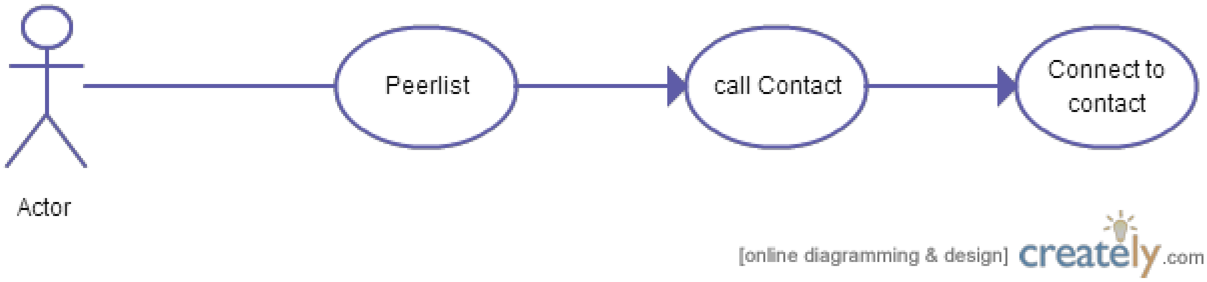


Figure 1 - Calling a peer on the network.

Preconditions:

- The device must have wifi and it must be switched on.
- Both user and contacts phone must be switched on.
- Both user and contacts phone must be:
  - Either connected to the same wifi network
  - or both use the same mesh network.
- The user must call the contact.
- The contact must accept the call.
- Both parties must remain accessible on the network.

Postconditions:

- A connection that allows communication must be established between the user and his contact.
- Real time voice communication will be provided.

First time use

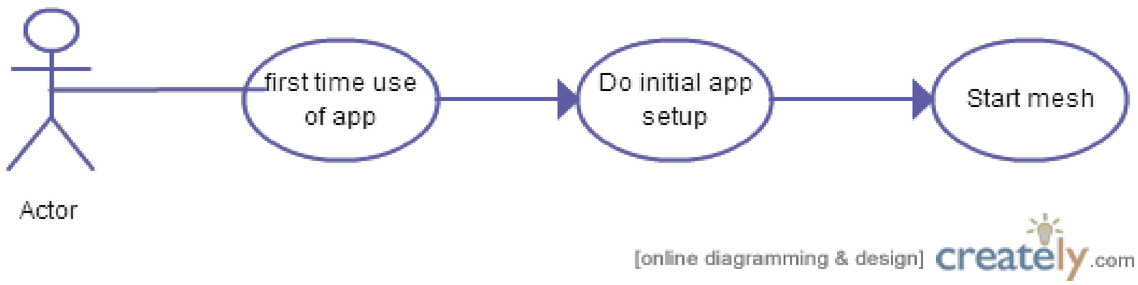


Figure 2 - Initial application setup.

Preconditions:

- The app must be successfully installed on your android device.
- The device must have wifi and it must be enabled.
- Your device can be rooted. Root is required to use the ad-hoc mesh mode but root privileges can be granted at a later stage as well. (More information on how to root yo android device at http://www.androidcentral.com/root)
- User must accept the prompt for the first time setup.

Postconditions:

- The app must be able to pick up contacts from the peerlist (If there are any available contacts).
- The app must meet its functionality (As described in the functional scope).

Message Contact

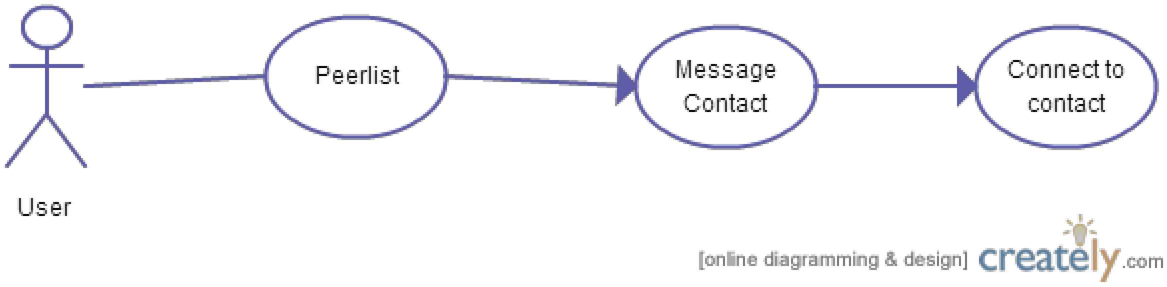


Figure 3 - Sending messages to a peer.

Preconditions:

- The device must have wifi and it must be switched on.
- Both user and contacts phone must be switched on.
- Both user and contacts phone must be:
    - Either connected to the same wifi network
    - or both use the same mesh network.
- The user must type a non empty message and press send.

Postconditions:

- A connection that allows communication must be established between the user and his contact.
- The message must be delivered to the intended peer.
- The recipient must be notified of the arrival of the message.

Receive Message

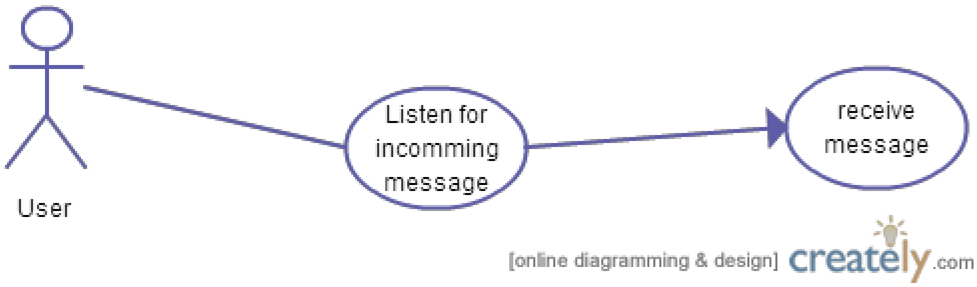

User
Listen for incomming message
receive message
[online diagramming & design] creately.com

Figure 4 - Receiving messages from a peer.

Preconditions:

- The device must have wifi and it must be switched on.
- A message must have been sent to this device.

Postconditions:

- A notification will be show notifying the user of the new message.
- The user can decide whether or not he wants to read the message or not.

Receive Call

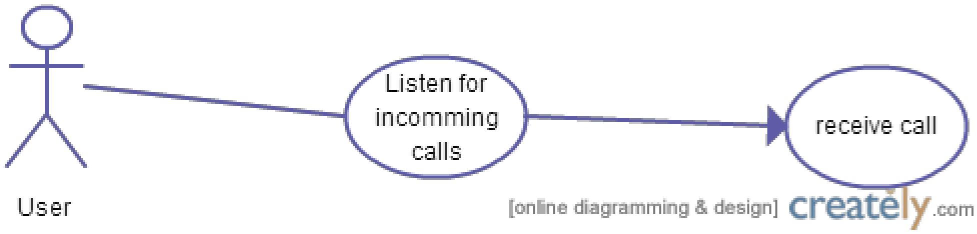

User
Listen for incomming calls
receive call
[online diagramming & design] creately.com

Figure 5 - Receiving a call from a peer.

Preconditions:

- The device must have wifi and it must be switched on.
- The device must be reachable by the caller via the network.
-

Postconditions:

- The user can decide whether or not he wants to accept the call or not.
- If the user accepts the a real time voice communication will be maintained until either party terminates the call or becomes disconnected from the network.
- If the user declines the call the call is ended and a post call screen is displayed.

2. Functional Requirements

- To service any of the use cases FR1 (Mesh Communication), FR3 (Network Status) and FR4 (Contact Status) need to be provided.
- To provide the calling and call receiving use cases FR2 have to be provided.
- FR7 (Bidirectional VOIP) is provided as part of the calling and receiving of calls use case, requiring less user action and a more user friendly experience.
- FR5 (Groups) and FR6 (Blacklist Contacts) are not detailed here because our clients as part of our better understanding of the problem domain asked us to rather focus making the application easy to understand and use.

3. Activity Diagram

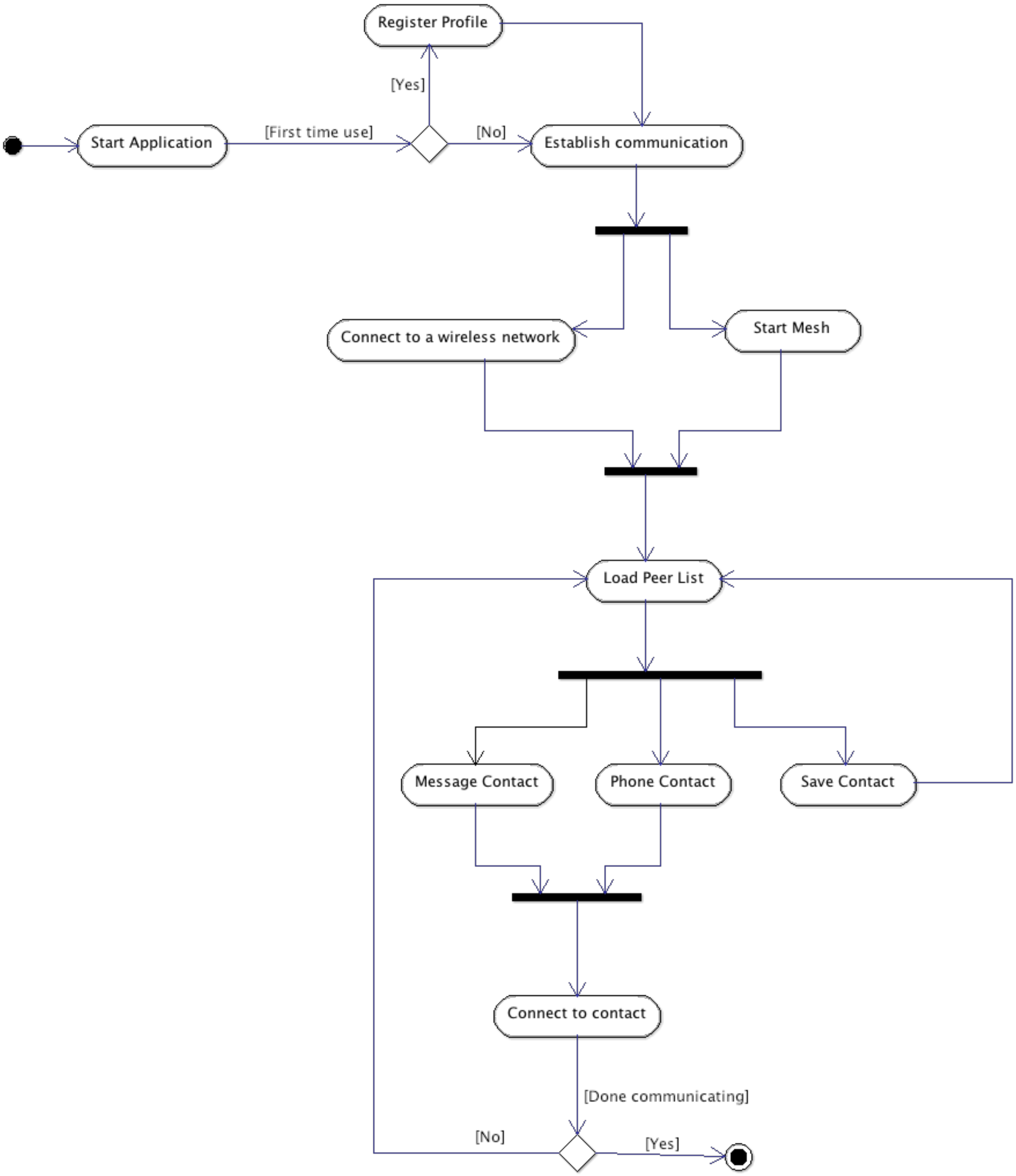
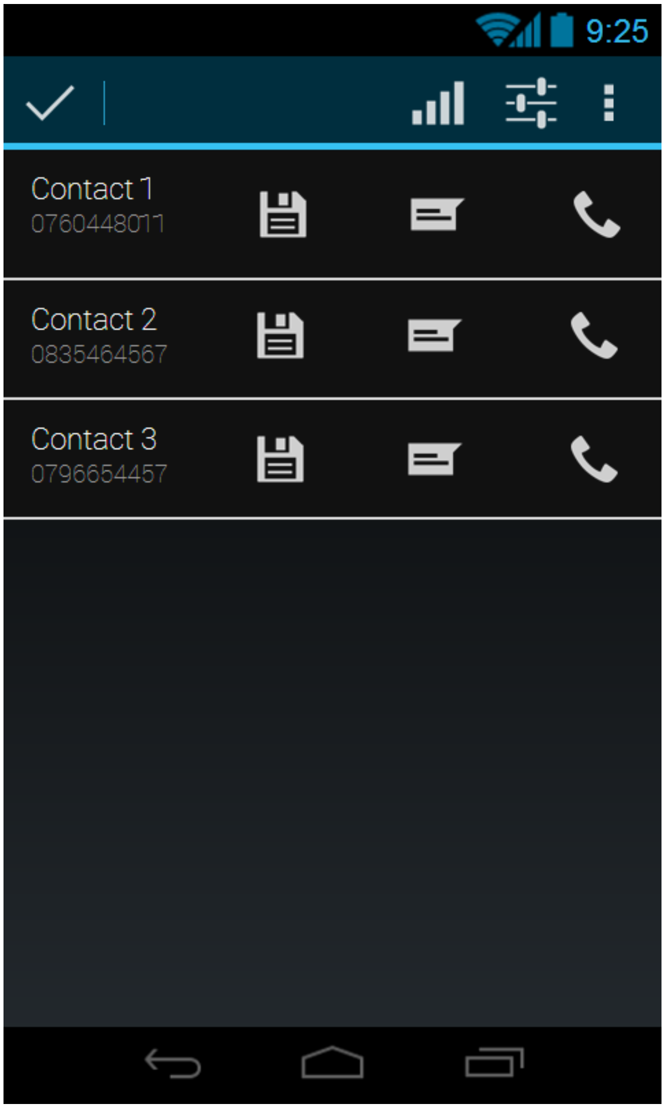


Figure 6 - Activity Diagram

4. Interface Designs

The interface design for this project is very important as the users should be able to use the application with as little understanding of the underlying technology without removing too much of the power of choice. These designs should be used as a guideline and should be modified when user testing dictates.



Contact 1
0760448011

Contact 2
0835464567

Contact 3
0796654457

Figure 7 - Main Screen, peer list
This interface exposes most of the functionality of the application allowing the user to see all the contacts that are connected to the network. Each of the these contacts can then be called, messaged or added to the android contact list via the appropriate buttons. All the other functionality like settings and network mode can be reached in the action bar or menu.

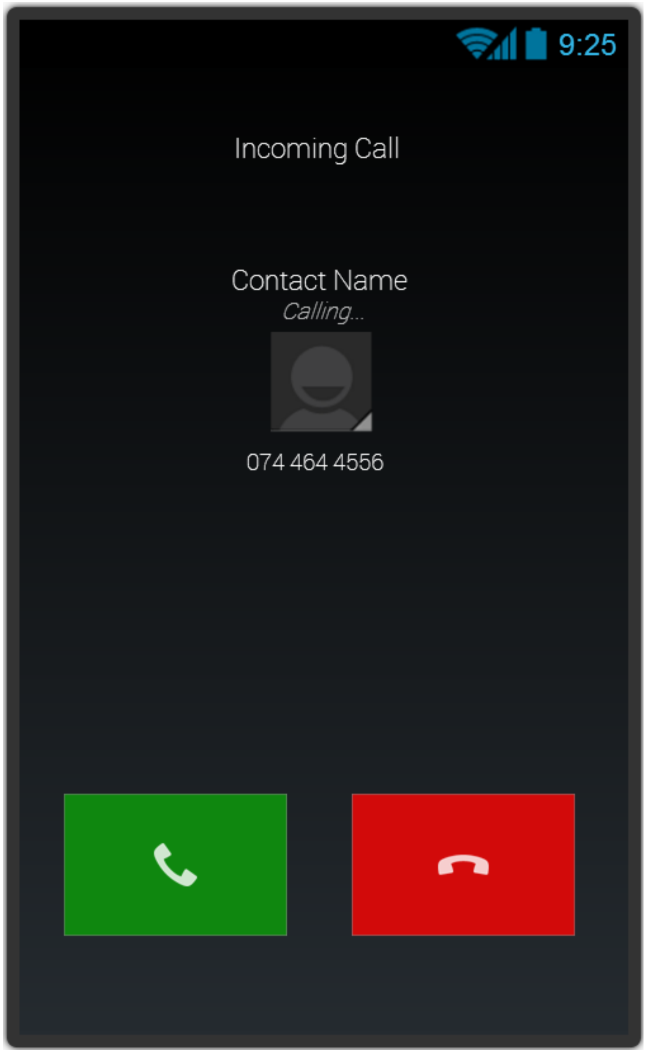


Figure 8 - Incoming Call Screen
This interface allows the user to accept or decline an incoming call.

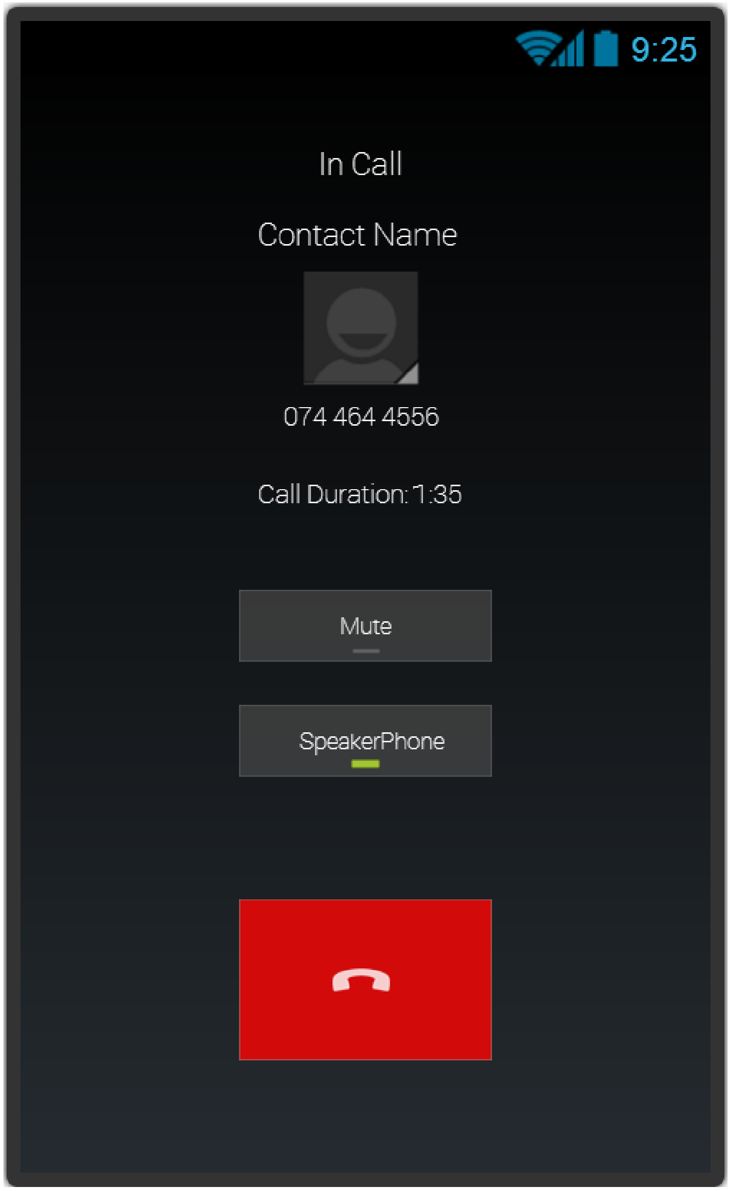
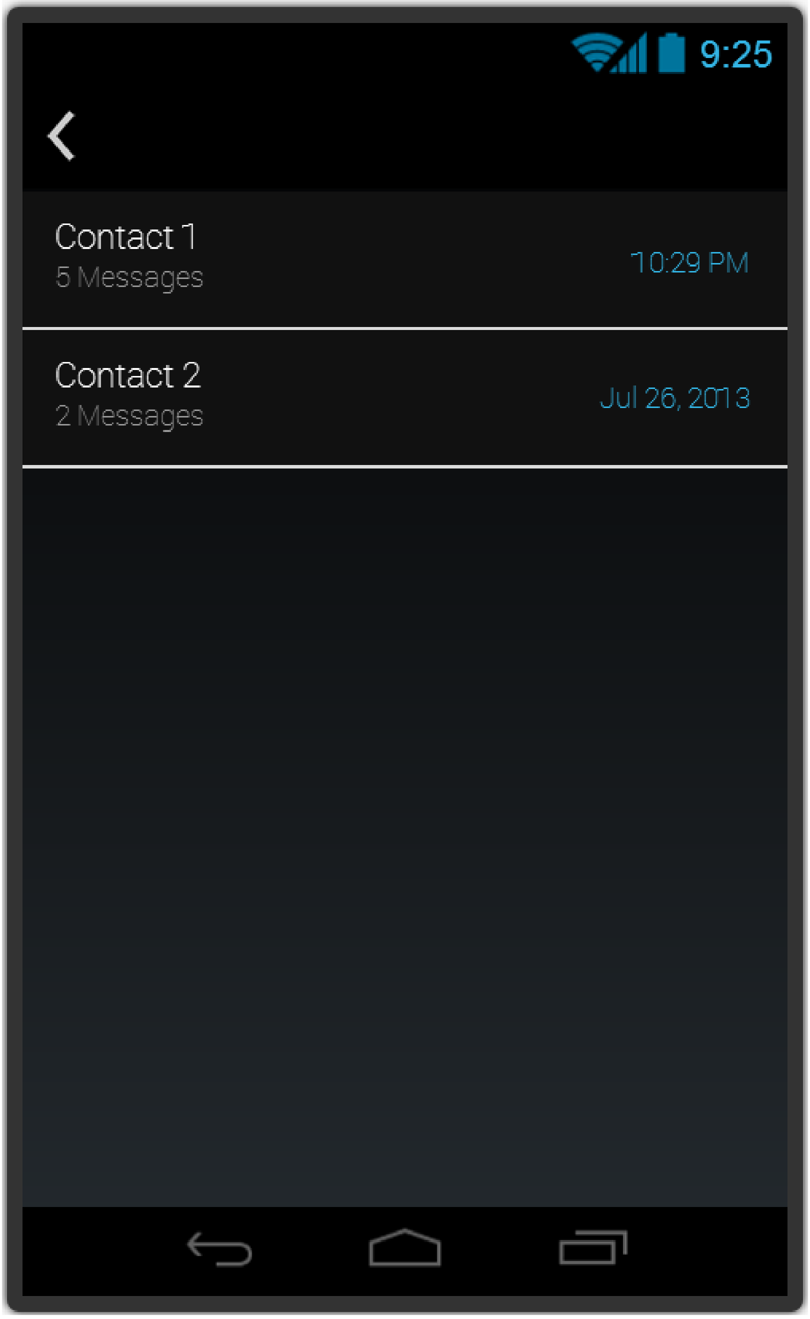


Figure 9 - In Call Screen
This interface displays the status of the current in progress call and allows the user to terminate the call. The user can also choose to use the speakerphone or to mute the audio. The speakerphone setting should persist across calls.

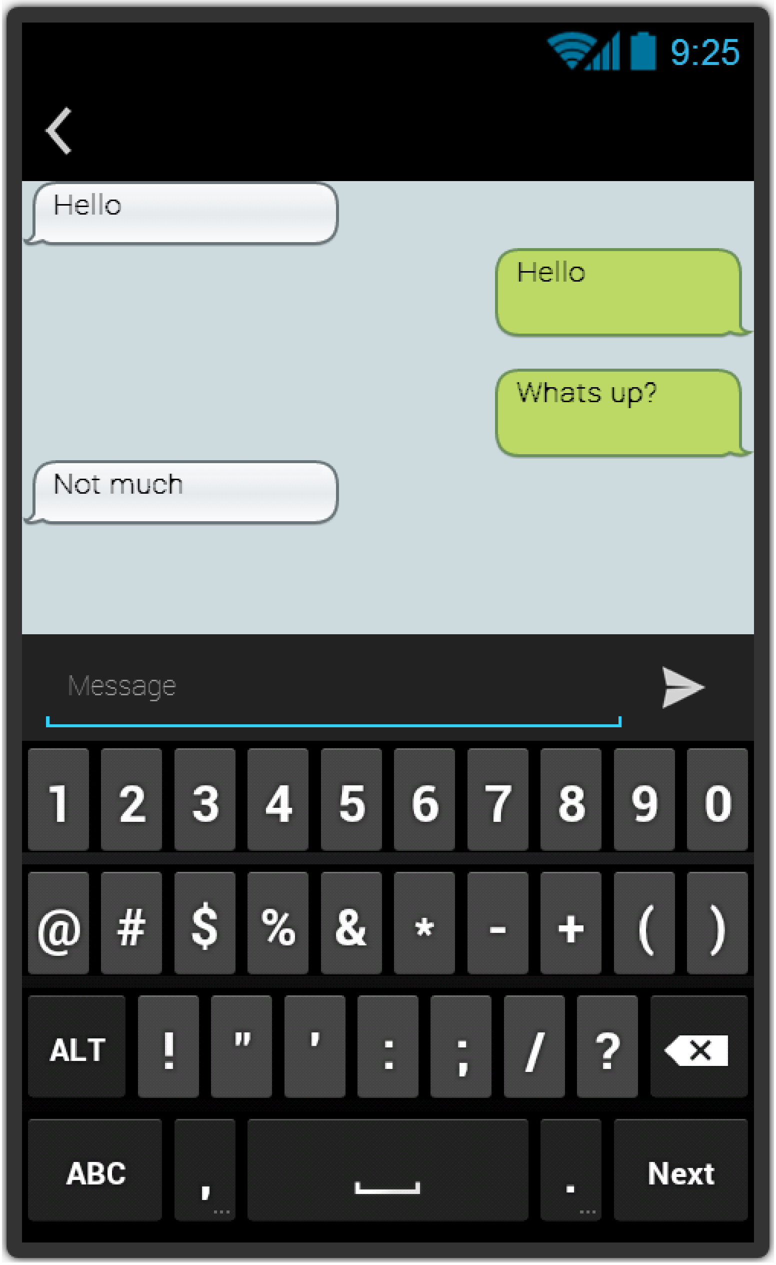


9:25

Contact 1
5 Messages
10:29 PM

Contact 2
2 Messages
Jul 26, 2013

Figure 10 - All Messages Screen
This interface show all the threads that the user has participated in. The user can then open each thread to view the conversation thus far and add to it.



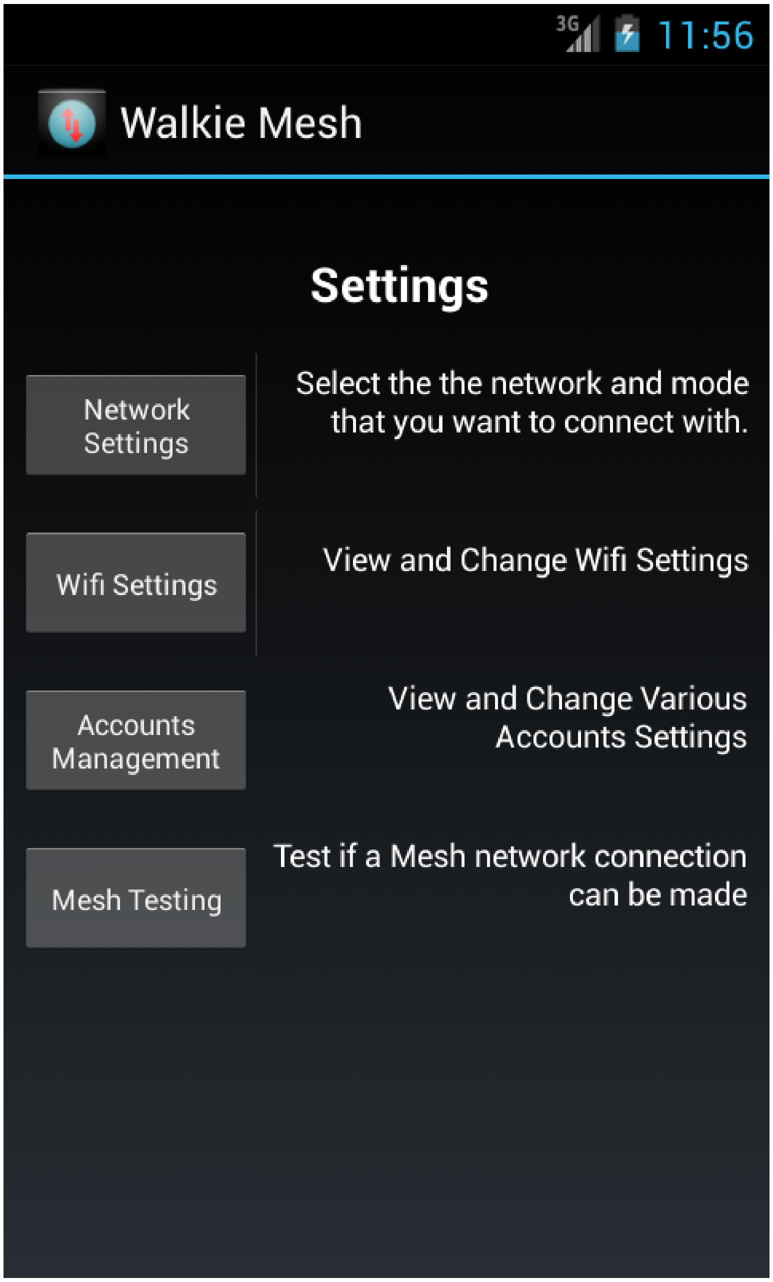
Hello

Hello

Whats up?

Not much

Figure 11 - Conversation Screen
This interface show all the messages in a conversation that has been exchanged with a specific contact.



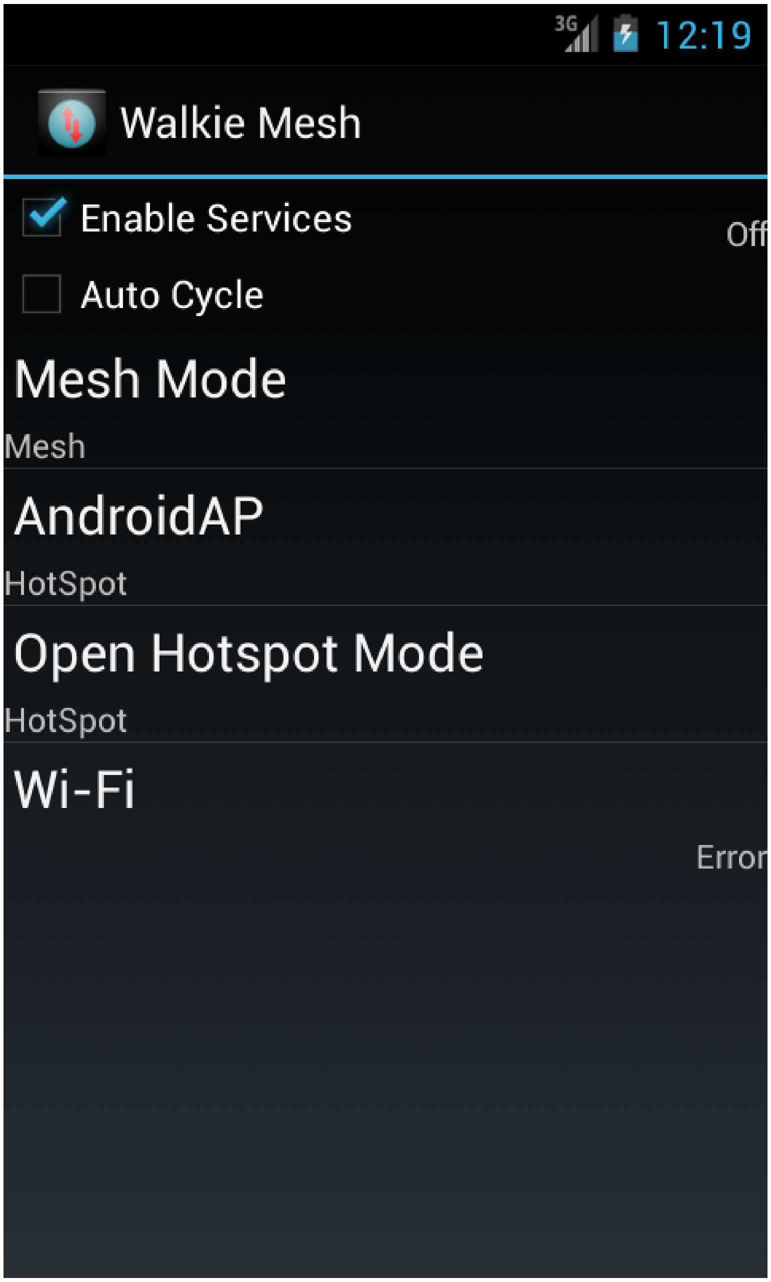
Select the the network and mode that you want to connect with.

View and Change Wifi Settings

View and Change Various Accounts Settings

Test if a Mesh network connection can be made

Figure 12 - Settings Screen
This interface allows the user to open the different categories of settings.



12:19

Walkie Mesh

☑ Enable Services

Off

□ Auto Cycle

Mesh Mode

Mesh

AndroidAP

HotSpot

Open Hotspot Mode

HotSpot

Wi-Fi

Error

Figure 13 - Network Mode Screen
This interface allow the user to select the network mode that the application should use.

5. References

- Walkie Mesh Vision and Scope document.