Bandit!

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Motivation

- Some Entertainment utilizing multiple gadgets.
- Create a game that allows interactivity.
- Use some sort of communication, through two phones.
- Band idea, where two players can play instruments at the same time.

Bandit

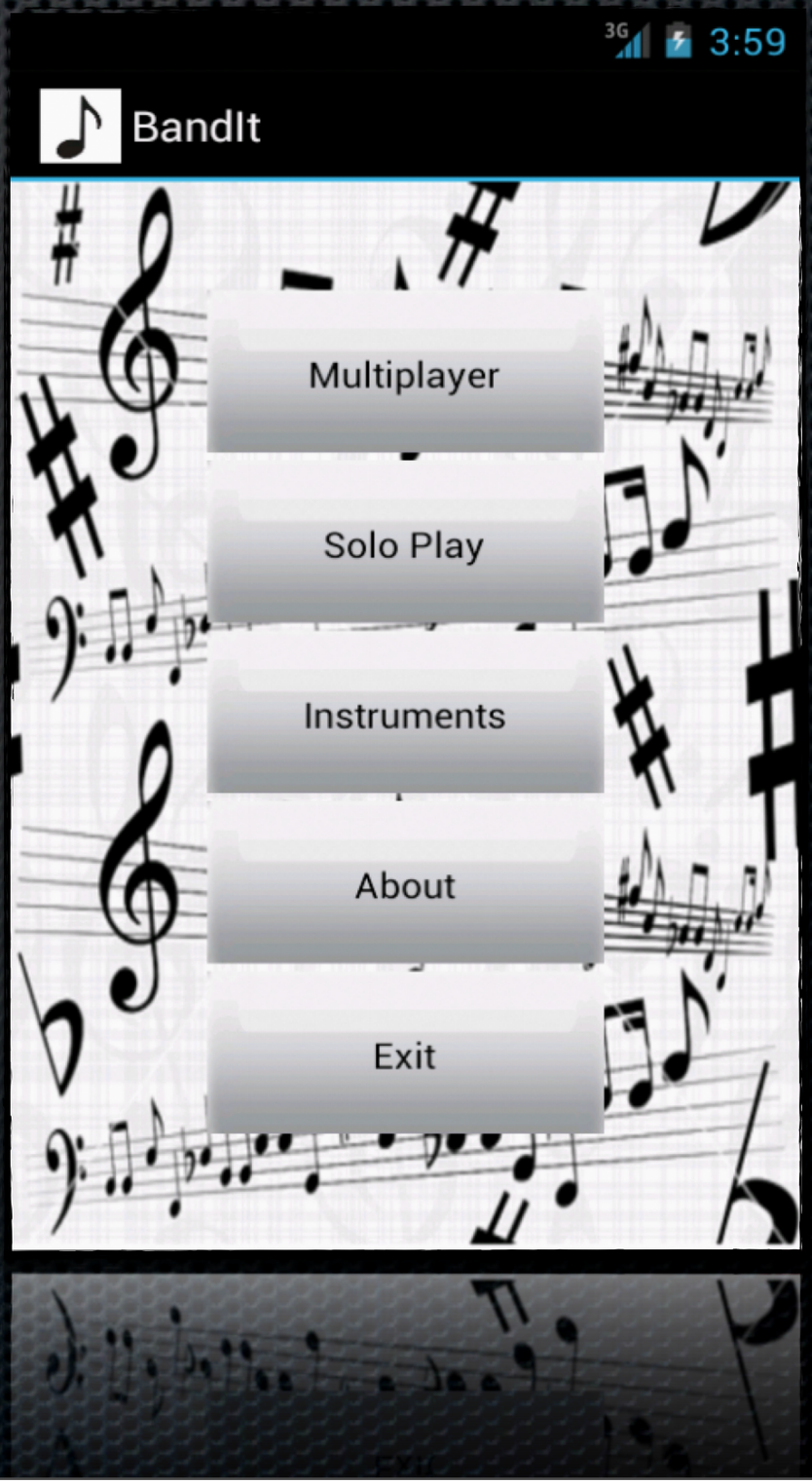
- An app, that will allow two users, to play instruments at the same time.
- A mobile band!

Setup

- Idea
  - Choose from a variety of instruments
- UserInterface
  - Display the Instruments
- Tools Needed
  - Android SDK
    - utilizing the SoundPool API
    - Bluetooth
  - Collection of sound files (.OGG)

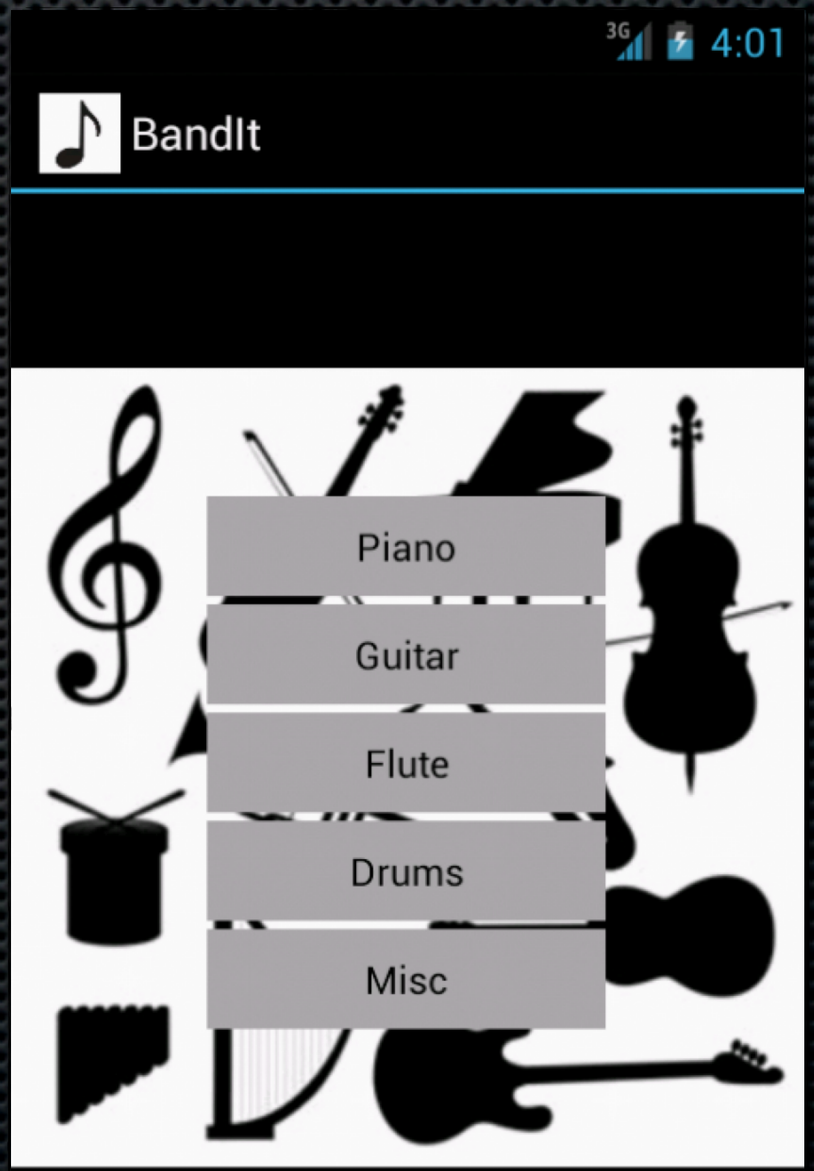
Main Page

- Simple Layout
- Buttons to choose between different modes
- Allow Solo player, for activity when by yourself.
- Multiplayer to play with friends via Bluetooth technology



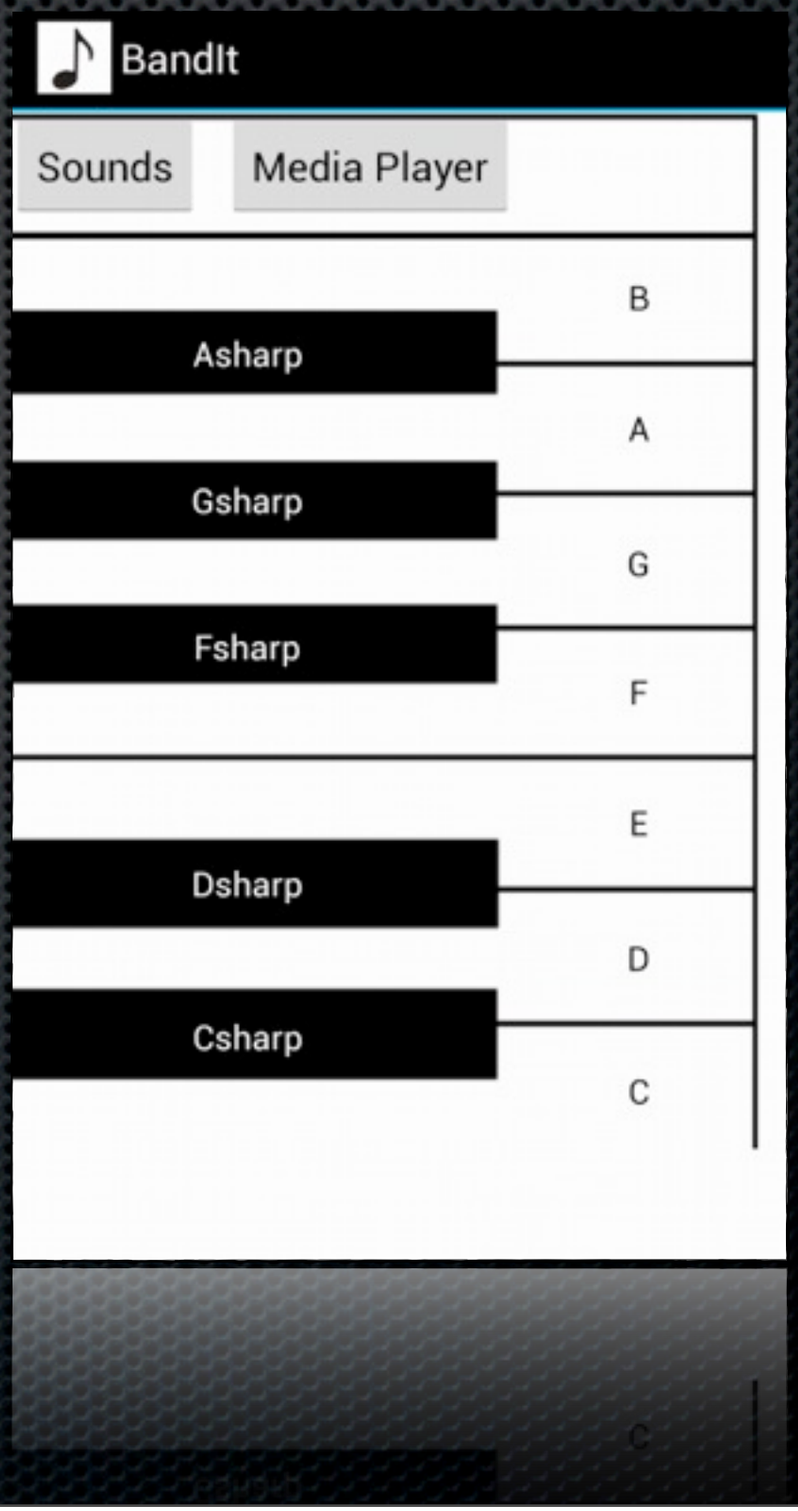
Instruments List

- Layout
  - List of the available instruments



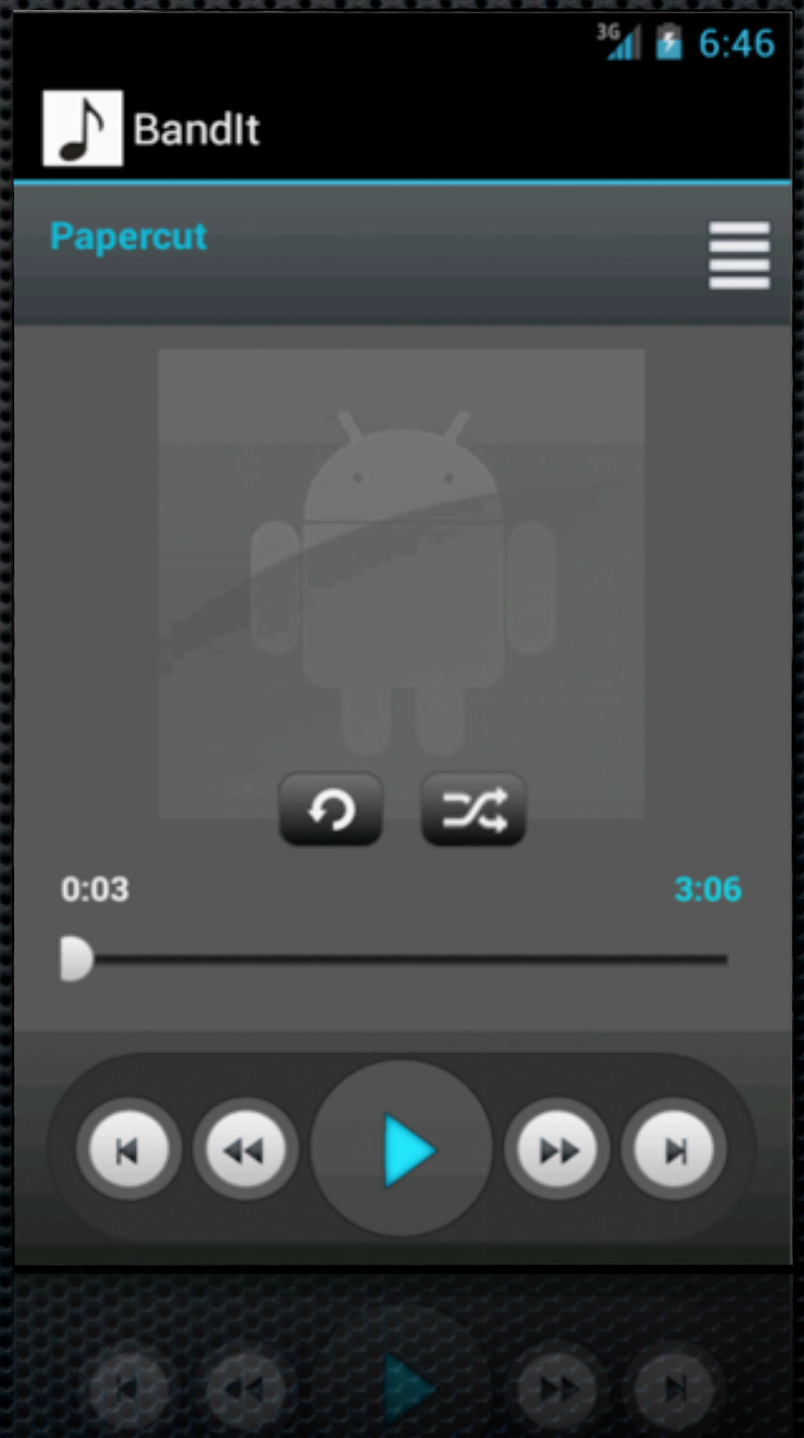
Soloplay

- Piano
  - Relative layout of buttons
  - Play soundclip for each button pressed
  - One octave only



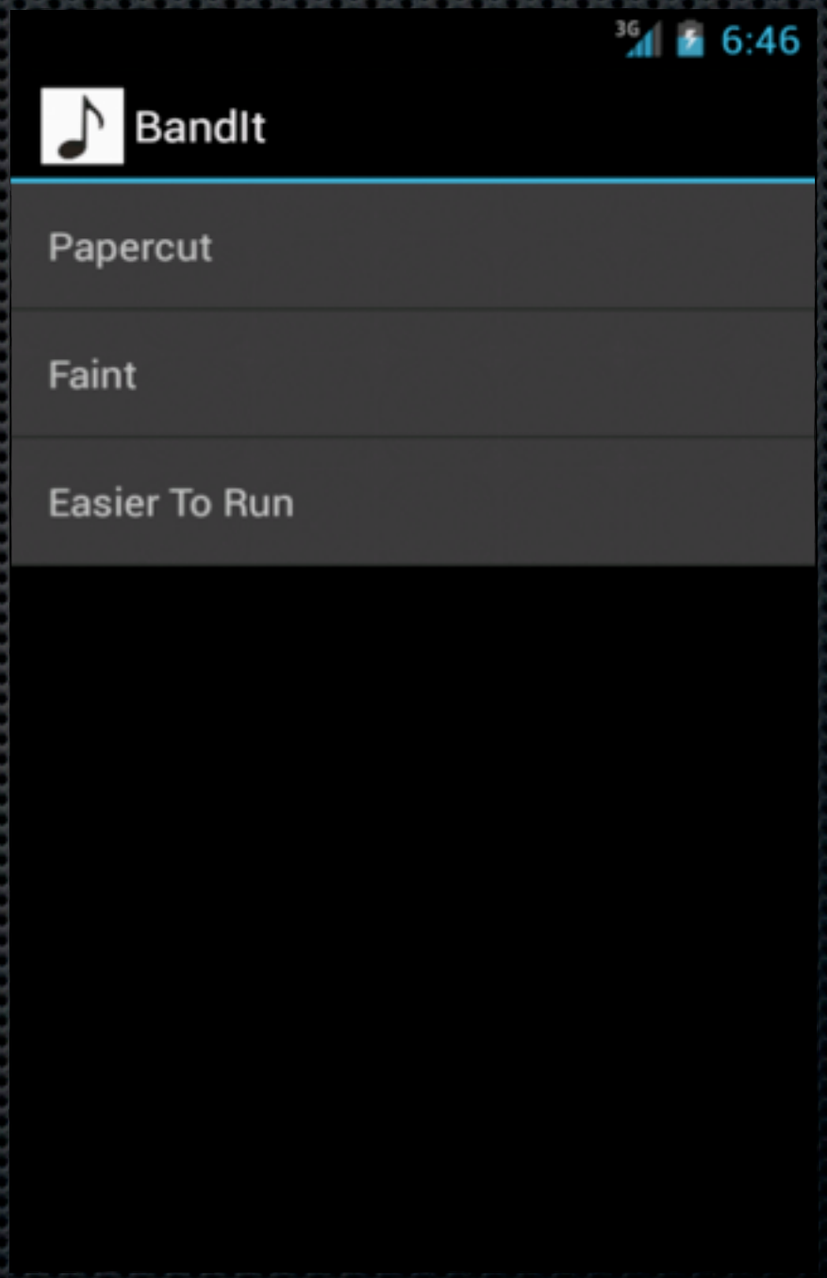
Media Player

- Allows us to play music
- Basic media player using MediaPlayer framework
- Taken from www.AndroidHive.info
- Integrated into our code
- Basic buttons



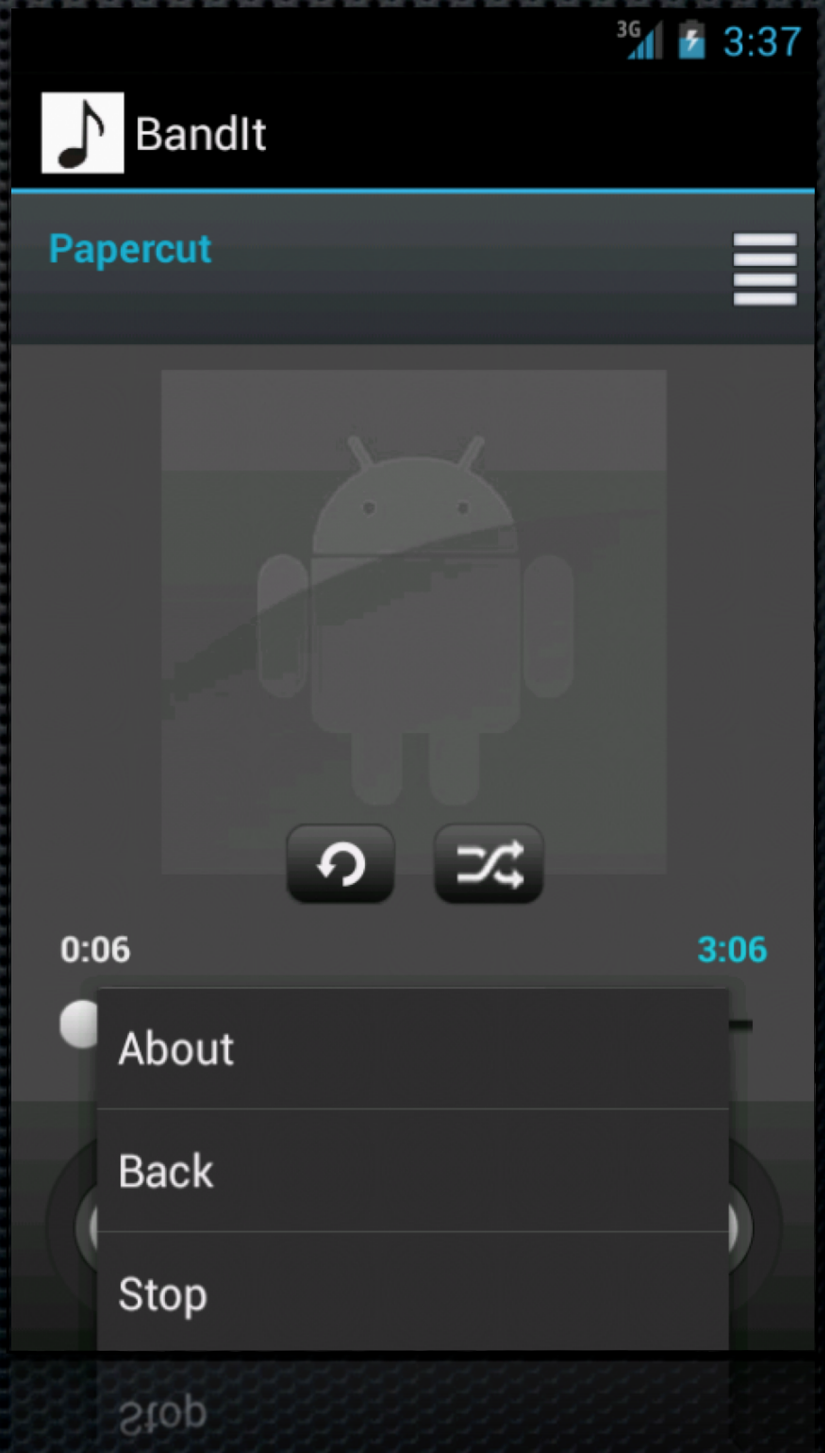
Song List

- Pick a song
  - Lists songs
  - Returns to Media Player and plays the song on click
  - Songs loaded from the SD card by specifying path and .mp3 only



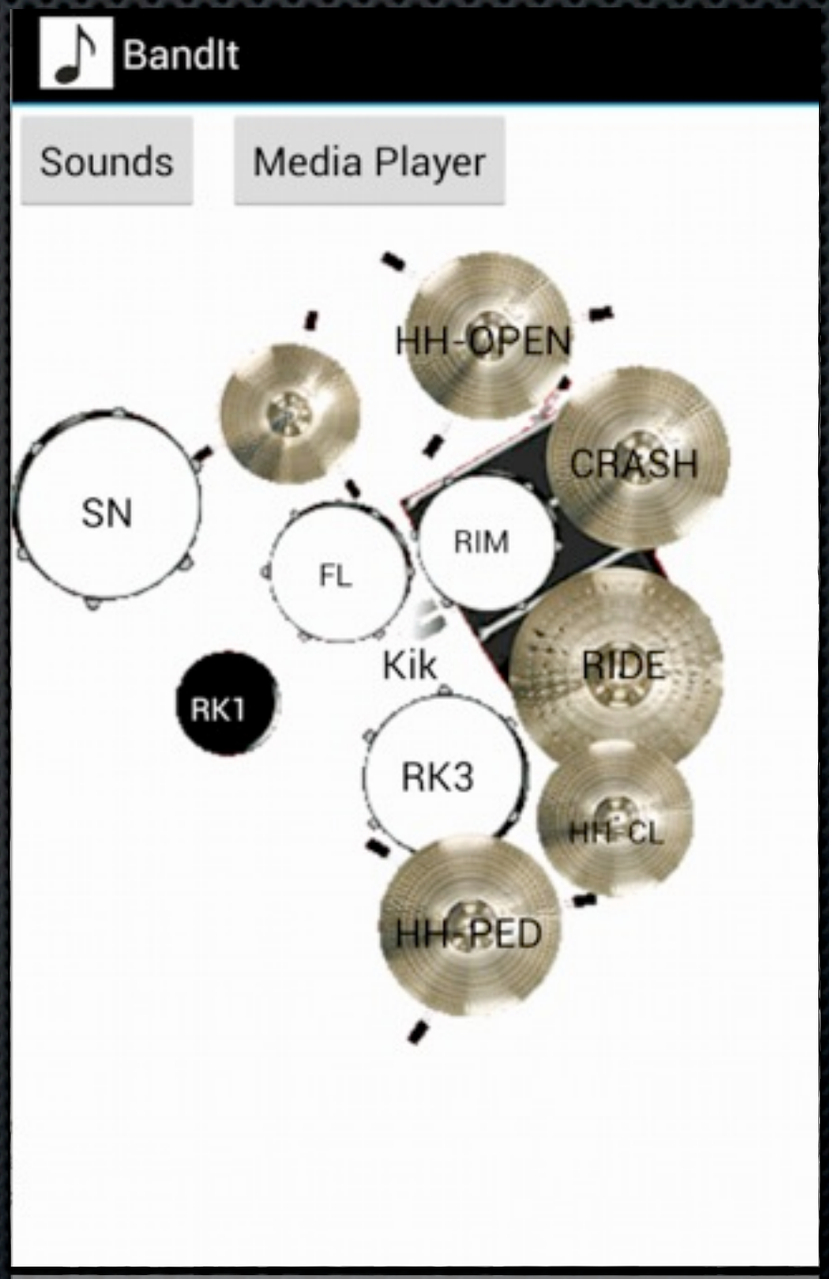
Media Player - Options

- Options menu
- Back - returns to previous menu
- About - disclaimer
- Stop - goes back to main menu



Additional Instruments

- Drums
  - Positional buttons for each drum instrument
  - A little difficult to pad the buttons.
  - Collect multiple drum sounds and assign different values to each



Additional Instruments

- Flute
  - Utilizes the traditional keyboard way to make sounds
  - Difficulty:
    - Cannot play just like the real flute
    - Involves multiple touches on the screen
    - listen() function

Additional Instruments

- Guitar
  - Traditional "keyboard" Layout of Buttons
  - Sound clips of chords triggered with each button
  - Large background image causes crash

Instrument Integration

- Integration of all instruments into solo and multi play
- Pick instruments, and jump into playing
- For multi play, be able to switch instruments while still being connected to another

Bluetooth Integration

- Idea
  - 2 phones with the same app could play simultaneously
  - When one plays, friend should be able to hear it
- Setup
  - Discover nearby devices to connect with
  - Abstraction of which is Client and Server

Bluetooth

- Build
  - Similar to Bluetooth Chat
  - Use similar idea to be able to send information regarding which button to play
  - Listening when not playing a button, and sending when playing a button.
  - Each button sends information holding sound IDvalue

Demo

Challenges

- Learning curve
  - Experience in mobile development
    - ADK - how to use, AVD, debugging
    - Android Stack
      - unexpected behavior (intent flags)
      - memory issue (multiple instances)
    - utilizing bluetooth
    - A lot to read and research, trial and error
- Multicast problems - limited to 2 phones
- Lag time during multiplayer

Challenges - Bugs

- Soundpool is picky - .ogg only
- R.java issue - clean before building, layout errors
- code integration - eye for detail
- AVD unable to play sounds - not enough memory
- AVD force close in certain activity - no errors, image src too big

Future Work

- More instruments
- Better looking layouts
- Scaling layouts
- Multicast
- Generate file after the game
- Enable multiple touches on one instrument
- Enable WiFi option as well - more users
- More than one octave

Questions?