# WBAN for Android Documentation

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## 1 Usage

The WBAN application performs the following functions:

- plot data in real time
- display historical data
- allow user to email data
- stores data in a comma separated file

When the user starts up the app, he will see the start screen shown in Figure 1.

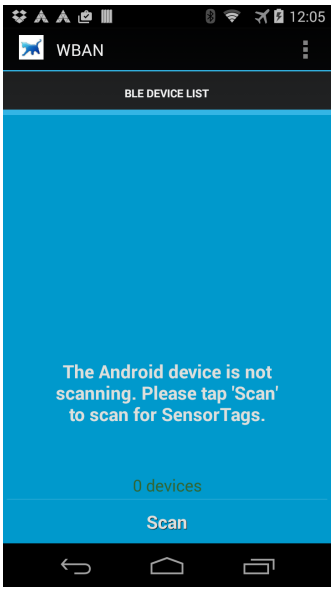


Figure 1: Start screen

The user should press the scan button and the app will use the phone's bluetooth adapter to scan for devices. When it finds the sensor tag, the sensor tag will display as in Figure 2.

The user then presses "Connect" and is then taken to the selection screen.

From the selection screen, the user can choose from the following options:

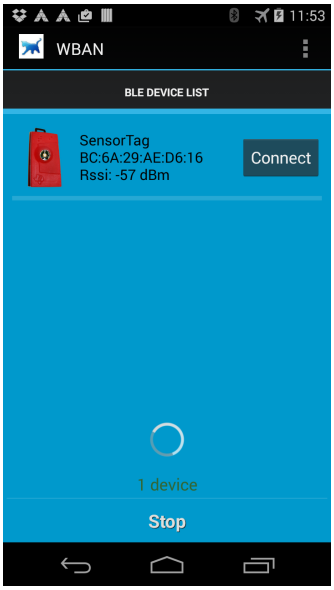


Figure 2: Device detected

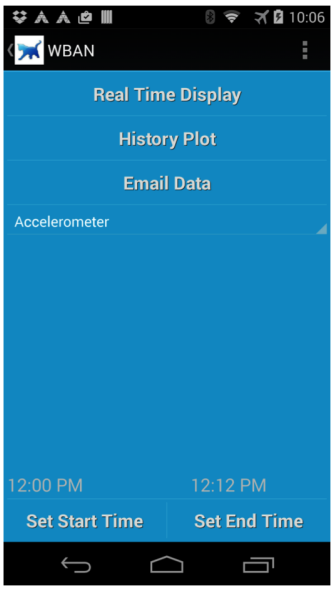


Figure 3: Selection screen

- Real Time Display - display data in real time for the currently selected sensor
- History Plot - display historical data
- Email Data - email the data in a zip file to a designated recipient

- Sensor Selector - choose which sensor to plot data from

While in the selection screen, the app is continuously listening for incoming data and saving it to a comma-separated file named wbandata.csv. The location of this file is in the Downloads folder. It can be changed by modifying the "PATH" constant in DeviceActivity.java:

## 2 Developer Notes

The WBAN application allows additional sensors to be added (e.g., heart rate, temperature). They should be added in the code within the following methods in DeviceActivity.java

Listing 1: onItemSelected

```
public void onItemSelected(AdapterView<?> parent, View view,
                           int pos, long id) {
    // An item was selected. You can retrieve the selected item using
    // parent.getItemAtPosition(pos)
    selected = parent.getItemAtPosition(pos).toString();

    if (selected.equals("Accelerometer")){
        RTPlot.setTitle("Accelerometer");
        RTPlot.setRangeLabel("Acceleration (G)");
    }
    else if (selected.equals("Gyroscope")){
        RTPlot.setTitle("Gyroscope");
        RTPlot.setRangeLabel("Deg/s");
    }
}
```

Listing 2: updatePlot

```
void updatePlot(String uuidStr, dataPoint point) {
    double[] d = point.getDatac();

    if (selected.equals("Accelerometer")){
        for (int i = 0; i < 3; i++) {
            RTSeries[i].addFirst(null, d[i]);
        }
    }

    else if (selected.equals("Gyroscope")){
        for (int i = 0; i < 3; i++) {
            RTSeries[i].addFirst(null, d[i+3]);
        }
    }
```

The following libraries were used for the WBAN app:

- Android plot

- OpenCVS