Tutorial:

Here we provide a simple example of how to use our android Oledcomm GeoLiFi API. You can also use it as a basic structure for your development.

1. First of all, we suppose that you have already well installed the Java SDK, Android SDK and eclipse, etc. If not, please refer to Google tutorials to have the right development environment.
2. Create a new Android application, specify the project and packages names, once finished, minimum SDK 8, target SDK and compile with SDK 20.
3. Copy the provided lifi_lib.jar file to the folder "libs", refresh the project.
4. Edit the "AndroidManifest.xml", add
<uses-permission android:name="android.permission.RECORD_AUDIO"/>
<uses-permission android:name="android.permission.MODIFY_AUDIO_SETTINGS" />

5. In the MainActivity class, add the following code:

```java
public class LiFiLibDemoActivity extends Activity {

        TextView text1;
        GeoAudioAnalysis location;
        boolean start_flag = false;

        @Override
        protected void onCreate(Bundle savedInstanceState) {
                super.onCreate(savedInstanceState);
                setContentView(R.layout.main);
                text1 = (TextView) findViewById(R.id.freq);
                if (!start_flag) {
                        // create a new GeoAudioAnalysis object
                        location = new GeoAudioAnalysis(jack_status,
                                        getApplicationContext());
                        // start to watch the position changes
                        location.watchPosition(position);

                        start_flag = true;
                }
        }

        @Override
        protected void onStop() {
                super.onStop();
                if (start_flag) {
```

```java
                if (location != null) {
                        location.clearPosition();
                        location = null;
                        start_flag = false;
                }
        }
        finish();
        // when you press home button, the app will stop and release the
        // resource.

}

@Override
protected void onDestroy() {
        super.onDestroy();
        if (start_flag) {

                if (location != null) {
                        location.clearPosition();
                        location = null;
                        start_flag = false;
                }
        }
        // When the activity is destroyed, the position must be cleared.

}

@Override
protected void onRestart() {
        super.onRestart();
        if (!start_flag) {
                if (location == null) {
                        location = new GeoAudioAnalysis(jack_status,
                                        getApplicationContext());
                        location.watchPosition(position);
                        start_flag = true;
                }
        }
}

// For switching direction of screen, no actions executed
@Override
public void onConfigurationChanged(Configuration newConfig) {
```

```java
            super.onConfigurationChanged(newConfig);
            if (newConfig.orientation == Configuration.ORIENTATION_LANDSCAPE) {
                    // Nothing need to be done here

            } else {
                    // Nothing need to be done here

            }
    }

    LiFiLocation position = new LiFiLocation() {

            @Override
            public void onLocationSuccess(String value) {
                    // TODO Auto-generated method stub

                    // the tag ID and current light intensity are received in this
                    // value, perform your UI operations based on this
                    text1.setText(value);

            }

            @Override
            public void onLocationError(int error) {
                    // TODO Auto-generated method stub

                    // instead of getting a valid ID, the errors are received, also
                    // useful for your UI operations
                    if (error == LiFiLocation.ERROR_NO_TAG) {
                            text1.setText("no tag");
                    } else if (error == LiFiLocation.ERROR_WEAK_SIGNAL) {
                            text1.setText("signal is too weak");
                    }
            }

    };

    JackStatus jack_status = new JackStatus() {

            @Override
            public void onJackEvent(int Event) {
                    // TODO Auto-generated method stub
```

```java
            // you can write your reactions when different JACK sensor status is
            // present
            // If you have an integrated sensor inside the device, no need to
            // implement this
            switch (Event) {
            case JACK_PLUGGED:
                    Toast.makeText(getApplicationContext(), "LiFi sensor plugged",
                                    Toast.LENGTH_SHORT).show();
                    break;
            case JACK_UNPLUGGED:
                    Toast.makeText(getApplicationContext(),
                                    "LiFi sensor unplugged",
Toast.LENGTH_SHORT).show();
                    break;
            case JACK_ABSENCE:
                    Toast.makeText(getApplicationContext(), "LiFi sensor absence",
                                    Toast.LENGTH_SHORT).show();
                    break;
            }

        }

    };

}
```