

Assignment 2 Problem

Mobile Indoor Localize and Walking Estimation

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Android ver.9 Policy Issue

WIFI problem

The latest version of Android 9 Pie was added some of background and foreground policy.

One of the access limitation is WIFI and connection information.

In 9, the device have to get GPS location permission for get WIFI SSID and BSSID.

Also, it limits the active-scanning to 4 times per 30min.

This policy decrease the quality of WIFI localization.



Android ver.9 Policy Issue

WIFI solution

I found some pattern of arriving signal in order.

There is a tendency of arriving and it was difference between starting points with little noisy pattern.

So, I ranked which one is arriving first, second, third ...

By this ordering and RSSI value, I weighted to different level.

It makes pretty good location estimating with limited data.

First	38:20:56:7e:da:80	-74
Second	38:20:56:7e:da:82	-74
Third	38:20:56:7e:da:83	-74
4 th	38:20:56:7e:da:8c	-77
...	38:20:56:7e:da:8c	-80
	38:20:56:7e:da:8c	-81
	38:20:56:7e:da:8d	-78
	38:20:56:7e:da:8d	-80
	38:20:56:7e:da:8d	-82
	38:20:56:7e:da:8d	-81
	38:20:56:7e:da:8e	-78
	38:20:56:7e:da:8e	-81
	38:20:56:7e:da:8e	-80

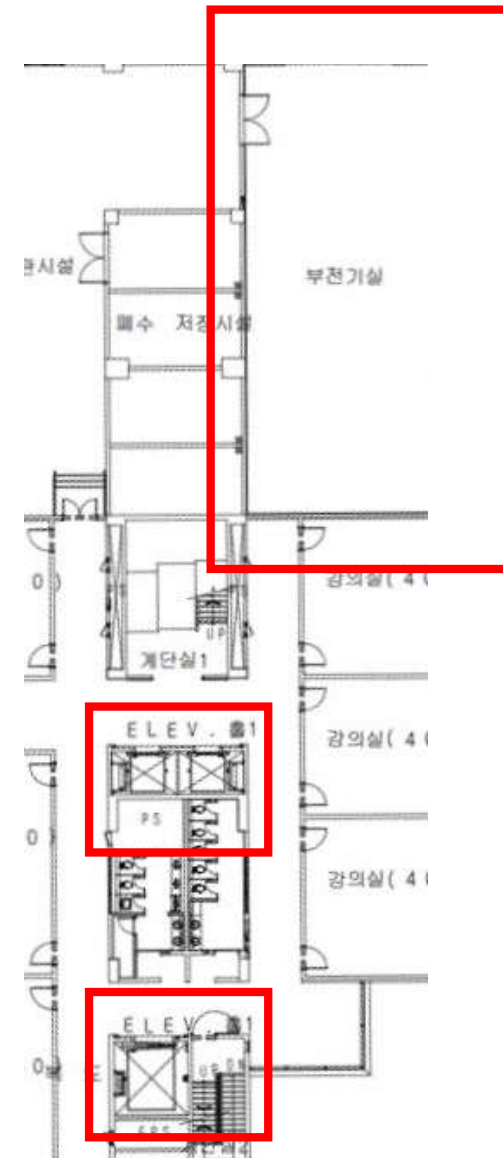
Magnetic sensor problem

React by infra structure

I used .getOrientation method to figure the orientation of the device.
But it is multi sensor method which are accelerometer and magnetometer.

The problem was magnetometer.

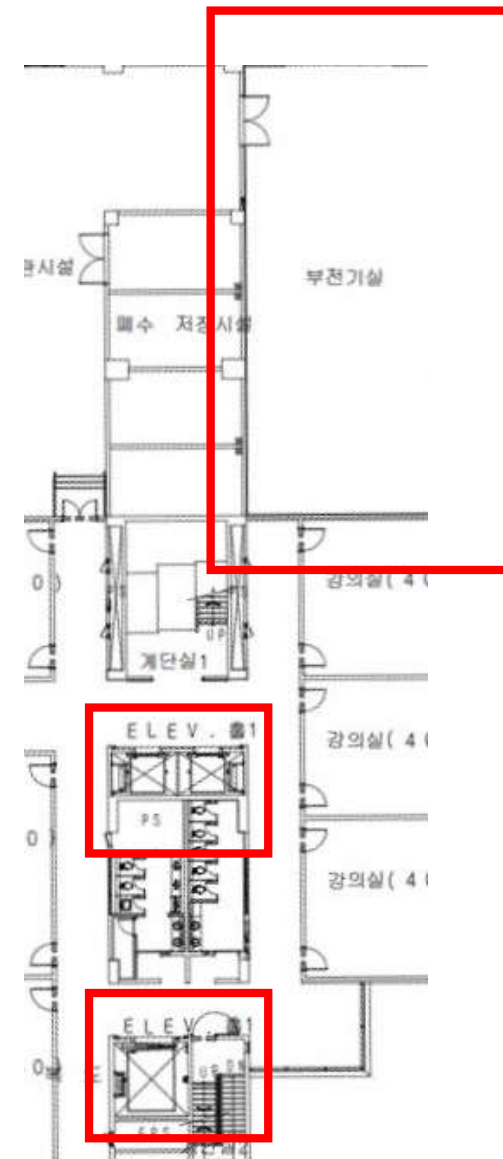
In 106-2nd, there are many place which generate strong magnetic field.
Top of the picture represents there is a electric equipment of building.
Two small box of the picture represents there exists elevator. This also generate strong magnetic field.



Magnetic sensor problem

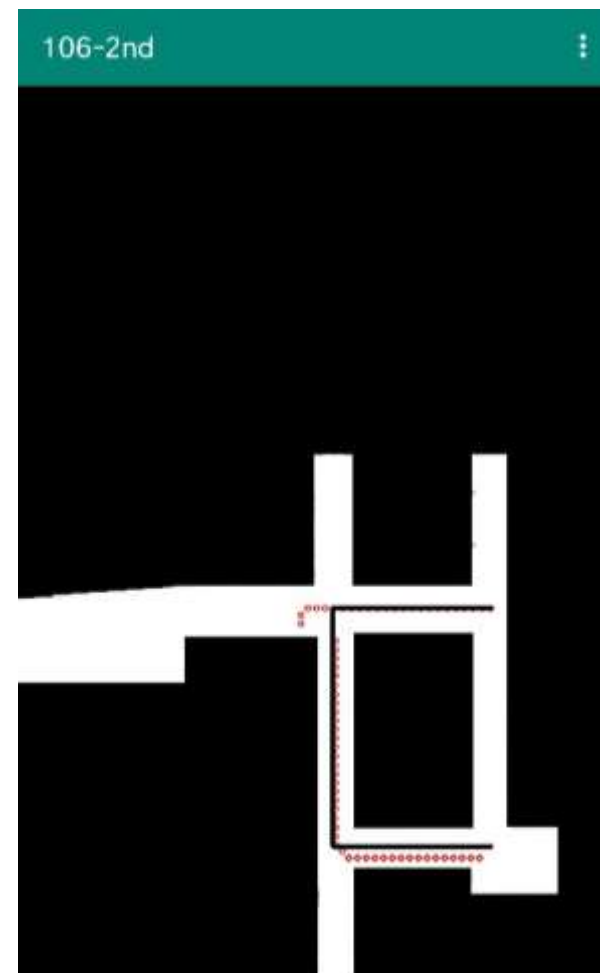
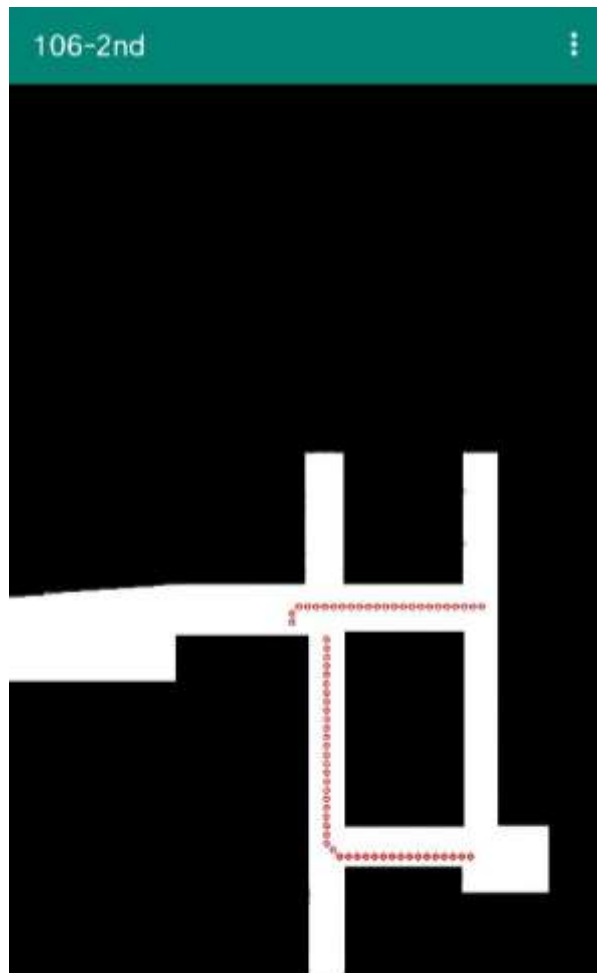
React by infra structure

So, I reduce the number of direction to 8 to reduce direction fluctuation.
Also, I set some offset of those area to fix magnetic error.



Results 1

Result image



Results

Result Video