

夏課題研究発表
位置情報スプーフィング

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やったこと

- Androidアプリの制作
- MACアドレス収集

夏の課題

Macアドレスを100箇所を集める！

- ・ androidアプリで収集しようとしたが…
→ Pythonで収集

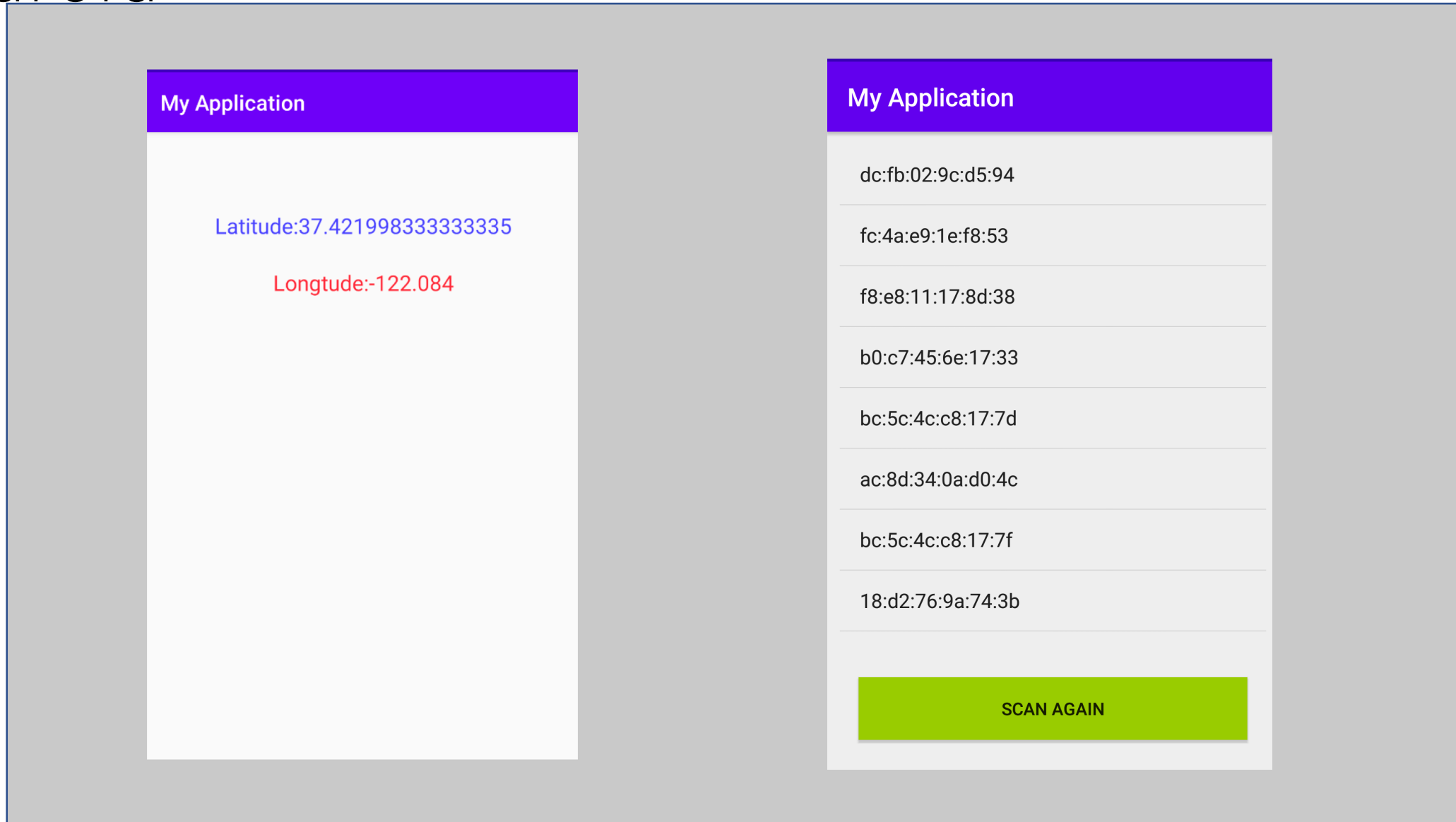
Androidアプリの制作

目的:macアドレスを収集をしてデータベースに入るアプリの作成

作成過程

- ・ macアドレスを収集するアプリの作成
- ・ 位置情報を出すアプリの作成

android



→位置情報取得方法的にうまく合わせられなかった

Python で収集



収集データ

```
"number51": {
  "location": {
    "name": "飯田橋",
    "name2": "飯田橋",
    "lat": 35.6990716,
    "lon": 139.7425812
  },
  "macadress": {
    "adress1": "5c:c3:07:7f:25:63",
    "adress2": "78:c5:f8:01:5e:ba",
    "adress3": "ac:7a:56:63:97:a1",
    "adress4": "ac:4a:67:d8:6e:ae",
    "adress5": "ac:4a:67:d8:6e:af",
    "adress6": "1c:de:a7:cf:0b:5a",
    "adress7": "1c:de:a7:cf:0b:56",
    "adress8": "1c:de:a7:cf:0b:57",
    "adress9": "50:a7:33:e1:36:5c",
    "adress10": "1c:de:a7:cf:0b:5c",
    "adress11": "50:a7:33:a1:36:5c",
    "adress12": "50:a7:33:61:36:5c",
    "adress13": "50:a7:33:21:36:5c",
    "adress14": "1c:de:a7:3e:d3:6e",
    "adress15": "1c:de:a7:3e:d3:6f",
    "adress16": "ac:4a:67:0b:06:ce",
    "adress17": "ac:4a:67:d8:6e:a0",
    "adress18": "1c:de:a7:3e:d3:61",
    "adress19": "f8:b7:97:1c:aa:23",
    "adress20": "1c:de:a7:cf:0b:55",
    "adress21": "1c:de:a7:cf:0b:5d",
    "adress22": "1c:de:a7:cf:0b:59",
    "adress23": "c8:00:84:23:97:af",
    "adress24": "50:67:ae:40:15:ed",
    "adress25": "ac:4a:67:0b:06:cf",
    "adress26": "50:67:ae:40:15:e6",
    "adress27": "50:67:ae:40:15:e7",
    "adress28": "0e:8d:cb:6f:93:ed",
    "adress29": "ac:7a:56:63:97:ae",
    "adress30": "ac:7a:56:63:97:af"
  }
}
```

- Jsonファイルで格納
- GPSの位置情報とmacアドレス最大30個収集

駅	公園	カフェ	キャンパス	家	その他
73箇所	1箇所	3箇所	4箇所	4箇所	20箇所

同じ場所を取ったりエラーが起きたりして変なデータも数カ所あるが

105回データ収集を行い合計2688個のmacアドレスの収集

St_location.json

発見

```
"adresa13": "12:09:b4:69:33:26",  
"adresa14": "02:09:b4:69:33:26",  
"adresa15": "f8:48:97:a5:84:19",  
"adresa16": "f8:48:97:a5:84:18",  
"adresa17": "02:09:b4:69:33:26",  
"adresa18": "02:09:b4:69:33:26"
```

Adresa13,14はベンダが検索しても出ない..

- ・ 数個電車内のみで取れるデータがあったが電車内と外で取れるデータはほぼ一致

- ・ Macアドレスが一文字違いのものが同じ場所で観測されることも多かった

→同じメーカーでセットで買ったから？
Macアドレスを管理しやすい様に変更しているのかも

データ整理

別の駅で同じアドレスが観測された場合は実験での使用に適していないため取り除いた

→したものがst_location2.json

(同じ場所を取ったものとかを考慮していないため変なデータもある)

残ったmacアドレスをその場所の特徴アドレスとして今後の実験に使用する

```
"number54": {
  "location": {
    "name": " 神田",
    "name2": " 神田",
    "lat": 35.6890624,
    "lon": 139.76893
  },
  "macadress": {
    "adress1": "ac:92:32:38:35:22",
    "adress2": "0c:44:35:11:f9:d0",
    "adress3": "50:67:ae:40:30:ca",
    "adress4": "50:67:ae:40:30:c3",
    "adress5": "1c:de:a7:09:64:aa",
    "adress6": "50:67:ae:40:30:c6",
    "adress7": "50:67:ae:40:30:c9",
    "adress8": "00:14:06:28:02:21",
    "adress9": "50:67:ae:40:30:c9",
    "adress10": "50:67:ae:40:30:c5",
    "adress11": "50:67:ae:40:30:cd",
    "adress12": "50:67:ae:40:30:c6",
    "adress13": "50:67:ae:40:30:c7",
    "adress14": "50:67:ae:40:30:ca",
    "adress15": "50:67:ae:40:30:cc",
    "adress16": "00:14:06:27:fd:71",
    "adress17": "00:14:06:27:fd:70",
    "adress18": "f8:b7:97:0d:18:d3",
    "adress19": "00:14:06:27:fd:72",
    "adress20": "44:c3:46:3d:5e:18",
    "adress21": "00:23:b1:7c:18:d7",
    "adress22": "1c:de:a7:09:64:a6",
    "adress23": "1c:de:a7:09:64:a3",
    "adress24": "1c:de:a7:09:64:aa",
    "adress25": "1c:de:a7:09:64:a5",
    "adress26": "1c:de:a7:09:64:ad",
    "adress27": "1c:de:a7:09:64:a6",
    "adress28": "1c:de:a7:09:64:ac",
    "adress29": "1c:de:a7:09:64:a9",
    "adress30": "1c:de:a7:09:64:a7"
  }
},
```



```
},
"number54": {
  "location": {
    "name": " 神田",
    "lat": 35.6890624,
    "lon": 139.76893
  },
  "macadress": {
    "adress1": "1c:de:a7:09:64:ad",
    "adress2": "50:67:ae:40:30:c6",
    "adress3": "00:14:06:27:fd:71",
    "adress4": "1c:de:a7:09:64:ac",
    "adress5": "00:14:06:28:02:21",
    "adress6": "50:67:ae:40:30:c9",
    "adress7": "50:67:ae:40:30:cd",
    "adress8": "50:67:ae:40:30:c3",
    "adress9": "00:14:06:27:fd:72",
    "adress10": "1c:de:a7:09:64:a6",
    "adress11": "1c:de:a7:09:64:a7",
    "adress12": "00:14:06:27:fd:70",
    "adress13": "1c:de:a7:09:64:a5",
    "adress14": "50:67:ae:40:30:c7",
    "adress15": "00:23:b1:7c:18:d7",
    "adress16": "1c:de:a7:09:64:a9",
    "adress17": "f8:b7:97:0d:18:d3",
    "adress18": "1c:de:a7:09:64:a3",
    "adress19": "50:67:ae:40:30:c5",
    "adress20": "50:67:ae:40:30:cc",
    "adress21": "1c:de:a7:09:64:aa",
    "adress22": "50:67:ae:40:30:ca"
  }
},
```

```
"number42": {
  "location": {
    "name": " キャンパス 5 階",
    "name2": " キャンパス 5 階",
    "lat": 35.706829,
    "lon": 139.659353
  },
  "macadress": {
    "adress1": "e8:26:89:0f:33:d1",
    "adress2": "e8:26:89:0f:33:d0",
    "adress3": "e8:26:89:0f:33:d3",
    "adress4": "e8:26:89:0f:33:d2",
    "adress5": "e8:26:89:0e:04:72",
    "adress6": "e8:26:89:0e:04:71",
    "adress7": "e8:26:89:0e:04:70",
    "adress8": "e8:26:89:0e:ae:61",
    "adress9": "e8:26:89:0e:ae:72",
    "adress10": "e8:26:89:0e:04:73",
    "adress11": "e8:26:89:0e:ae:60",
    "adress12": "e8:26:89:0e:ae:73",
    "adress13": "e8:26:89:0e:ae:71",
    "adress14": "e8:26:89:0e:ae:70",
    "adress15": "e8:26:89:0e:ae:63",
    "adress16": "0c:8f:ff:e6:f9:f9",
    "adress17": "70:3a:0e:95:a0:40",
    "adress18": "e8:26:89:0f:33:c1",
    "adress19": "e8:26:89:0e:9c:c3",
    "adress20": "e8:26:89:0d:cf:23",
    "adress21": "e8:26:89:0d:f2:30",
    "adress22": "e8:26:89:0d:cf:30",
    "adress23": "e8:26:89:0d:f2:31",
    "adress24": "e8:26:89:0d:cf:33",
    "adress25": "e8:26:89:0d:cf:32",
    "adress26": "e8:26:89:0d:cf:31",
    "adress27": "e8:26:89:0d:2e:d3",
    "adress28": "e8:26:89:0d:2e:d2",
    "adress29": "e8:26:89:0d:2e:d1",
    "adress30": "e8:26:89:0d:2e:d0"
  }
},
```



```
"number42": {
  "location": {
    "name": " キャンパス 5 階",
    "lat": 35.706829,
    "lon": 139.659353
  },
  "macadress": {
    "adress1": "e8:26:89:0d:cf:23",
    "adress2": "e8:26:89:0e:9c:c3",
    "adress3": "e8:26:89:0d:cf:30",
    "adress4": "e8:26:89:0e:ae:60",
    "adress5": "e8:26:89:0d:f2:30",
    "adress6": "e8:26:89:0d:cf:31",
    "adress7": "e8:26:89:0e:04:70",
    "adress8": "e8:26:89:0e:04:71",
    "adress9": "e8:26:89:0e:ae:73",
    "adress10": "e8:26:89:0e:ae:61",
    "adress11": "e8:26:89:0e:04:73",
    "adress12": "e8:26:89:0f:33:d0",
    "adress13": "e8:26:89:0e:ae:72",
    "adress14": "e8:26:89:0d:f2:31",
    "adress15": "e8:26:89:0d:cf:32",
    "adress16": "e8:26:89:0e:ae:63",
    "adress17": "e8:26:89:0d:cf:33",
    "adress18": "e8:26:89:0e:ae:70",
    "adress19": "e8:26:89:0f:33:d2",
    "adress20": "e8:26:89:0f:33:d1",
    "adress21": "e8:26:89:0e:ae:71",
    "adress22": "e8:26:89:0d:2e:d3",
    "adress23": "e8:26:89:0f:33:c1",
    "adress24": "e8:26:89:0e:04:72",
    "adress25": "e8:26:89:0f:33:d3"
  }
},
```

今後の展望

- ・ 江藤先輩の再現(地下室使えない恐れあり)
→収集したアドレスと位置情報データを利用し、精度と再現できる条件を確認
- ・ TLS通信の傍受
(<https://windy.mind.meiji.ac.jp/~kajima/2020/sample2.html>)

夏課題達成度は**70**パーセント

- ・ macアドレスの収集に関しては○
- ・ androidアプリがうまく作れなかった
- ・ Wiresharkがうまくいかなかった