

AI 프로그래밍 기초

AI 프로젝트

20230007 강민혁

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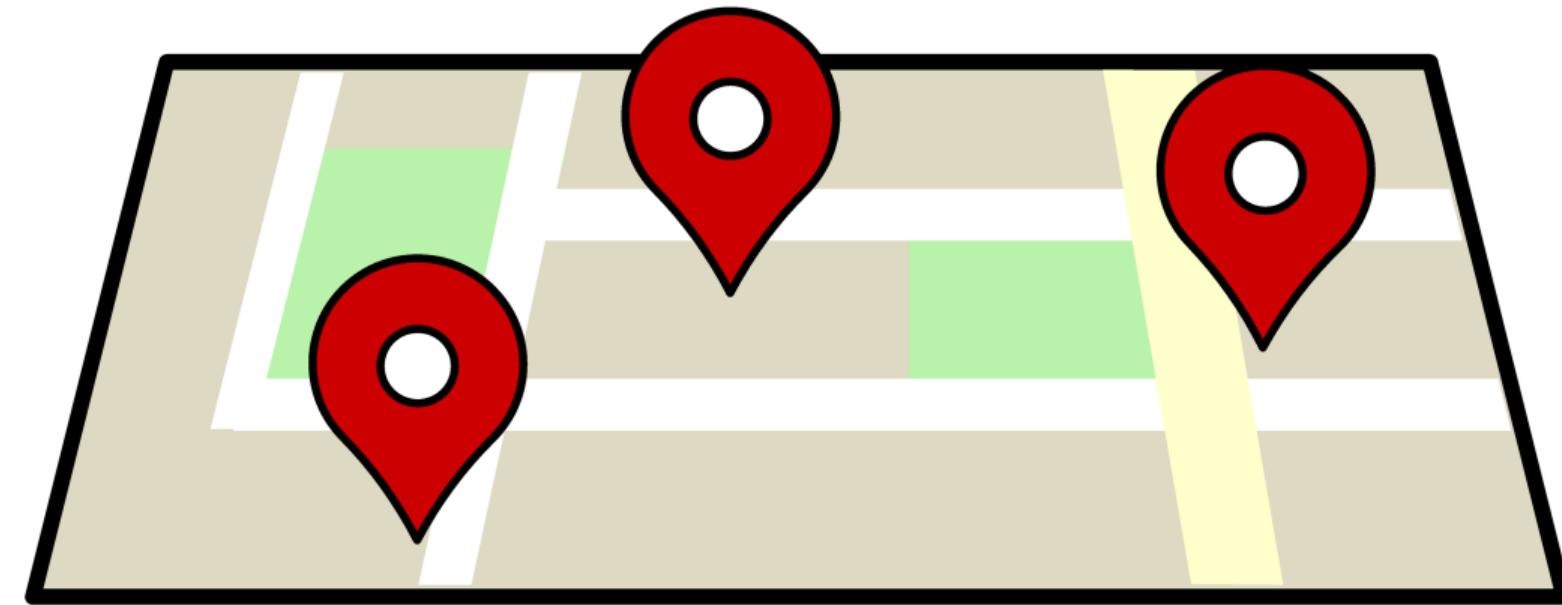
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01

이미지 분류 걸찾기

01 이미지 분류 길안내



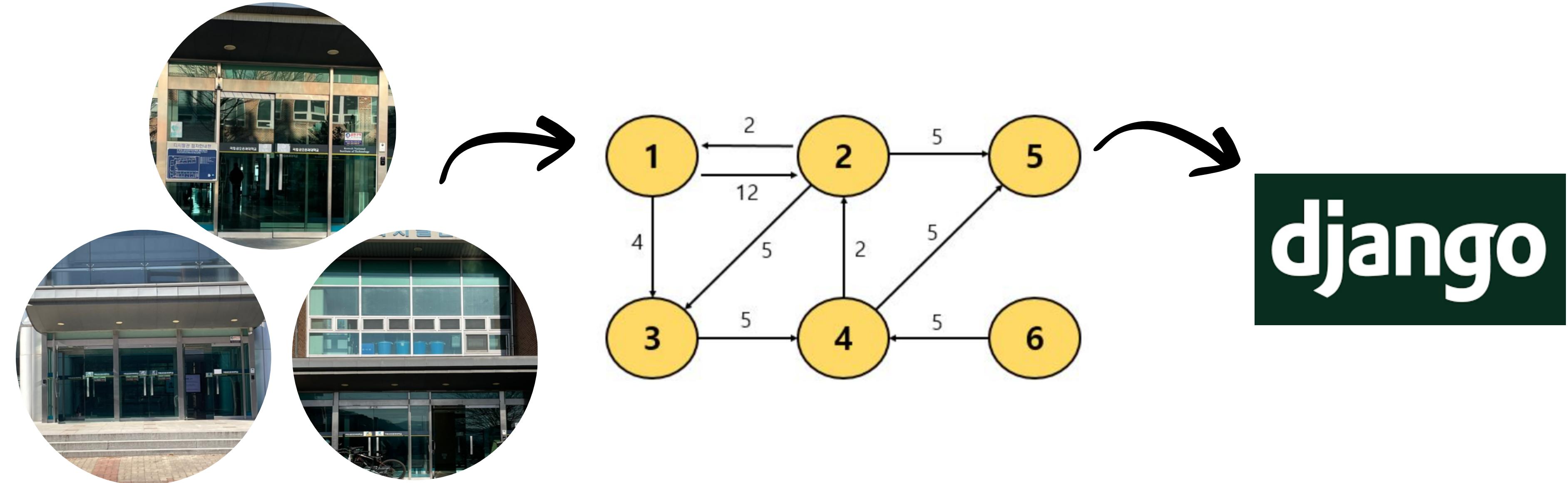
가고자하는 건물과 강의실
사진을 이용한 최단거리
길안내 서비스

02

구현 방법

이미지 분류, 길안내, 웹사이트 생성

02 구현 방법



02 이미지 분류 모델



→ d1_1



→ B125

'B125 대강의실 Lecture Room'

02 이미지 분류 모델

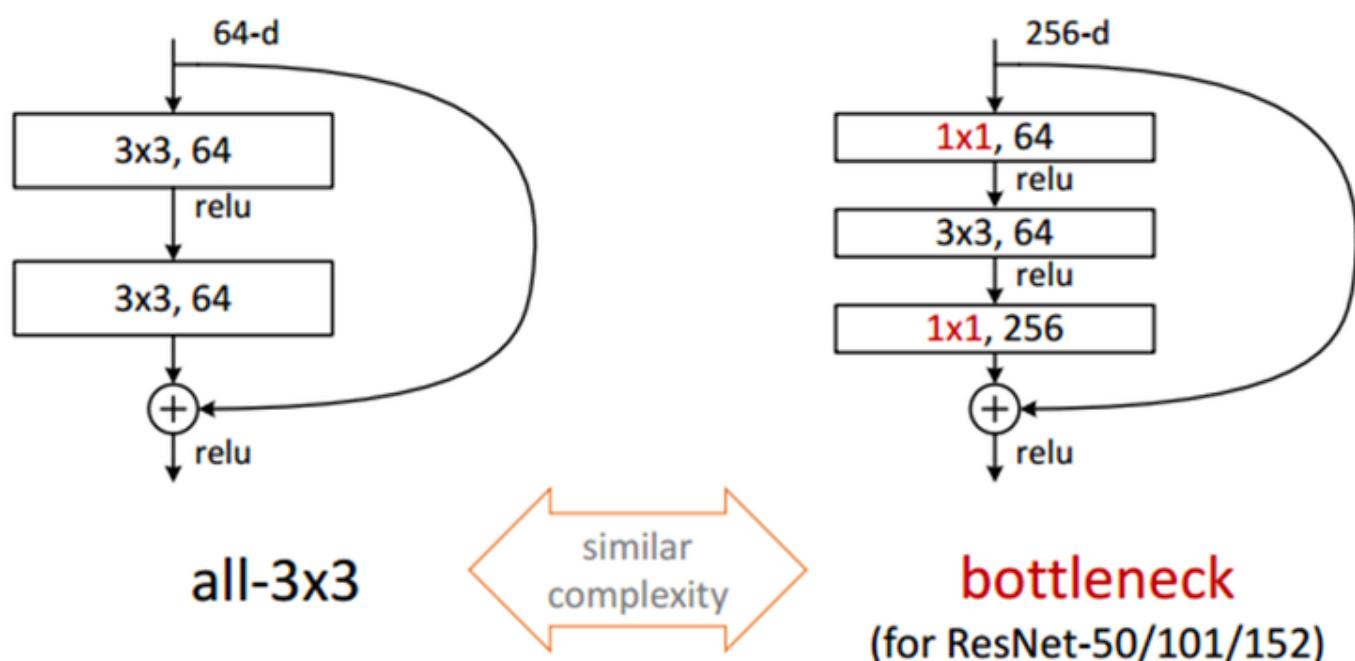
ResNet50(tensorflow)

신경망에서 층이 깊어질수록
파라미터의 수가 증가하고
학습력이 떨어지는 경향을 보임.

pororo

카카오 브레인에서 개발한
자연어 처리 모델.
한글을 잘 인식함.

병목블록을 사용한 모델



02 길안내 - 사용한 라이브러리

NetworkX

최단 경로

folium

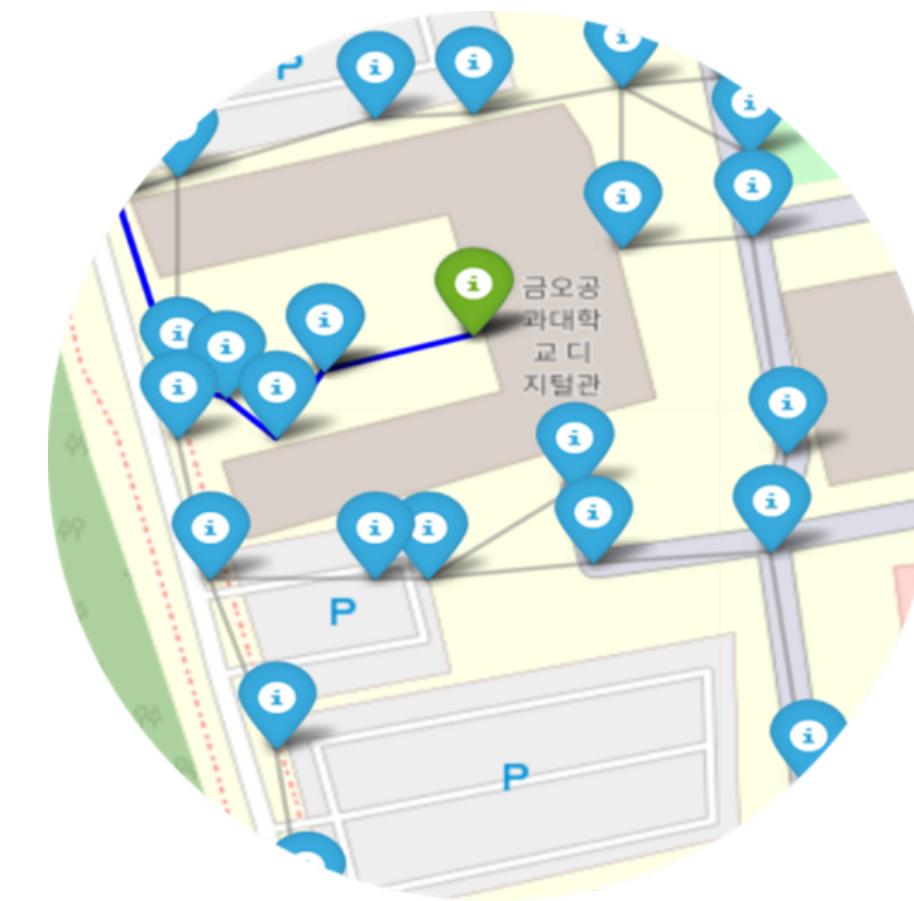
좌표 및
지도 표시

math

좌표 거리
계산

matplotlib

이미지 위에
지도 표시



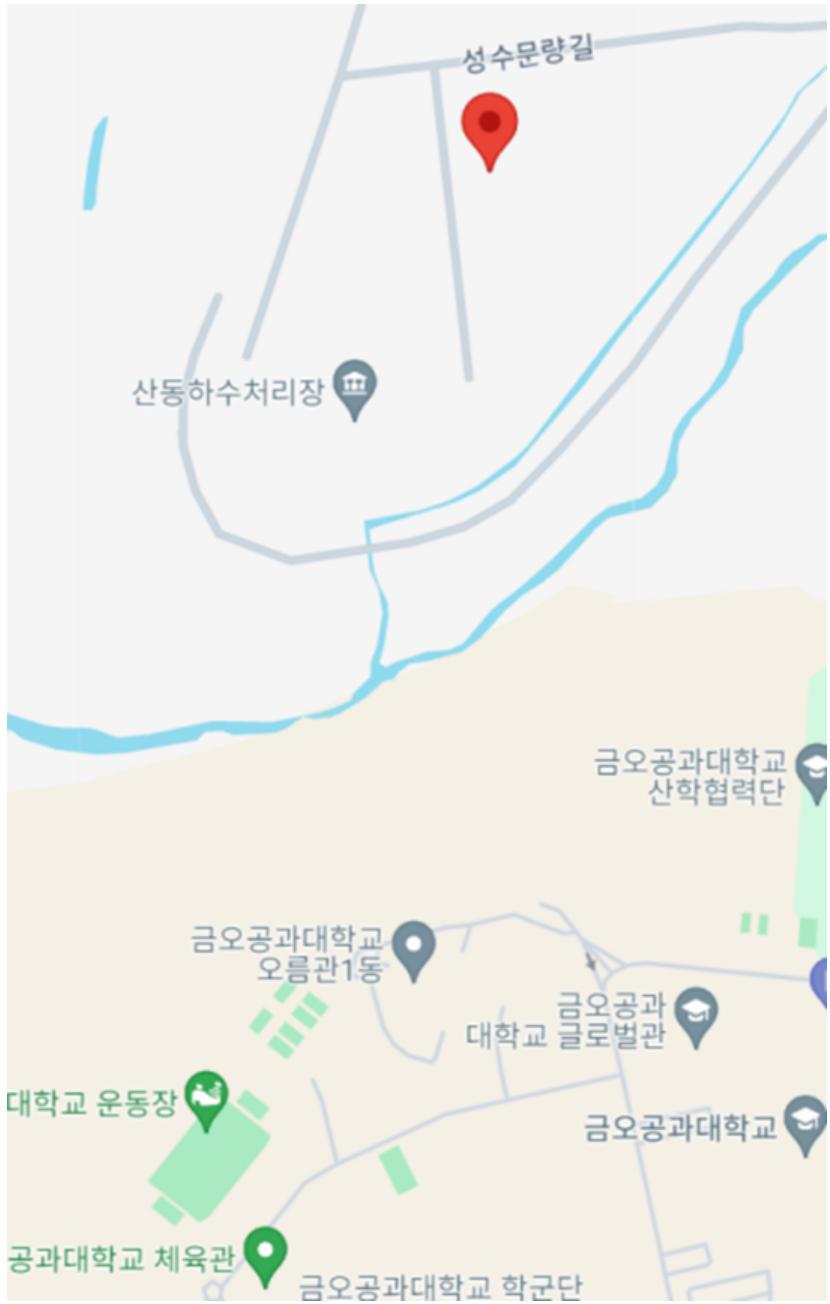
02 길안내-현재 위치



[Geolocation API](#)

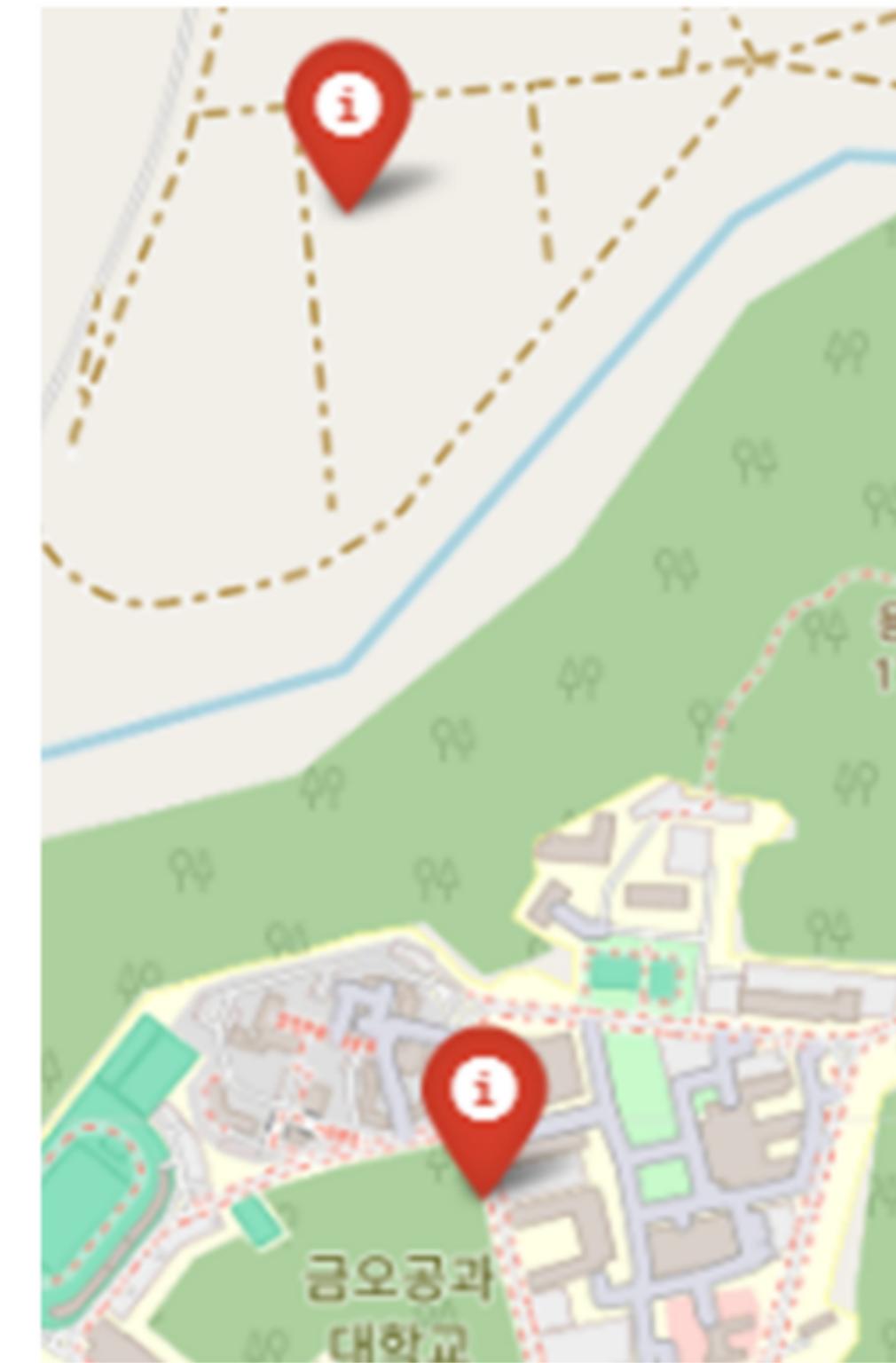
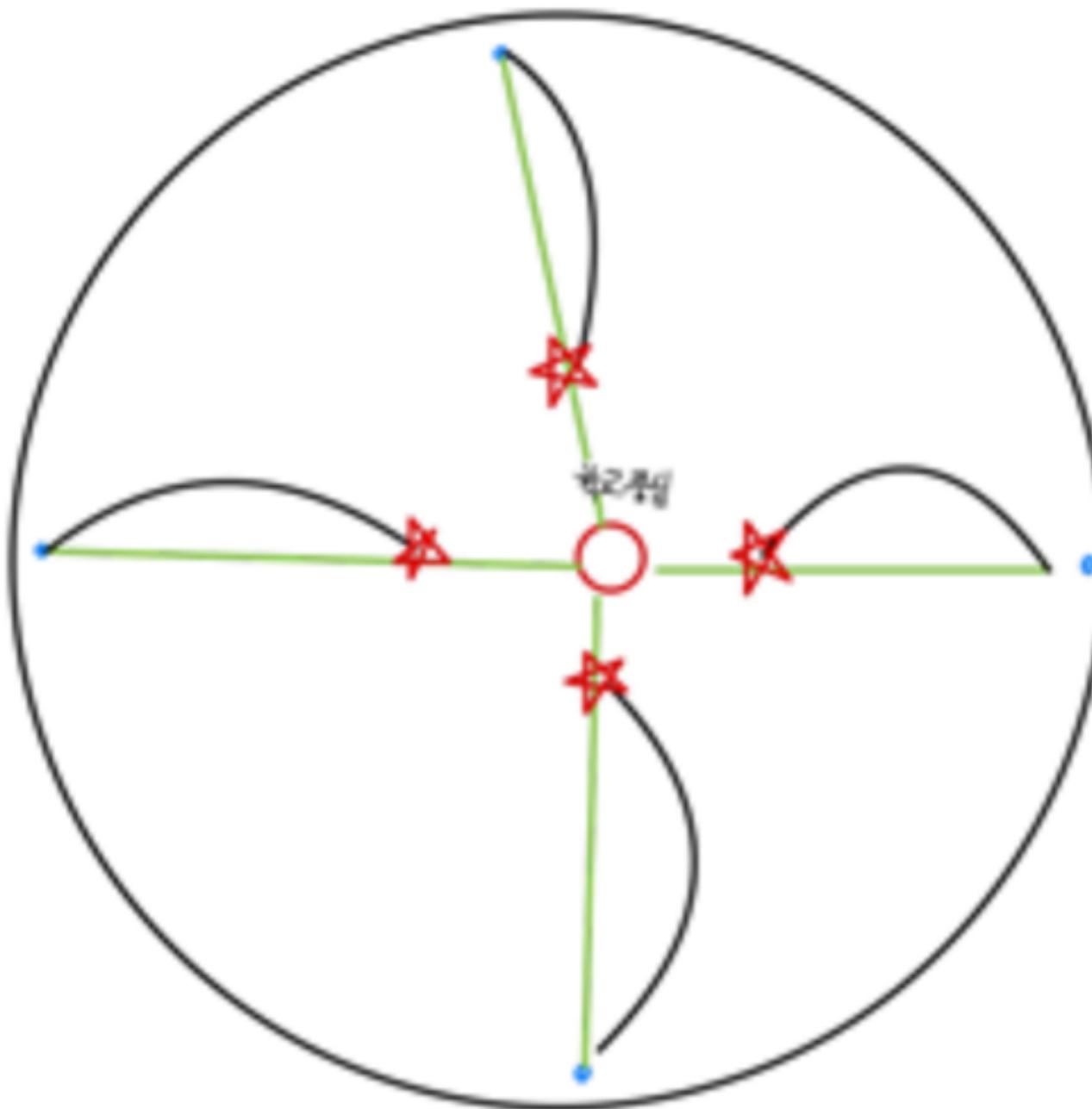
[Google Enterprise API](#)

02 길안내-현재 위치

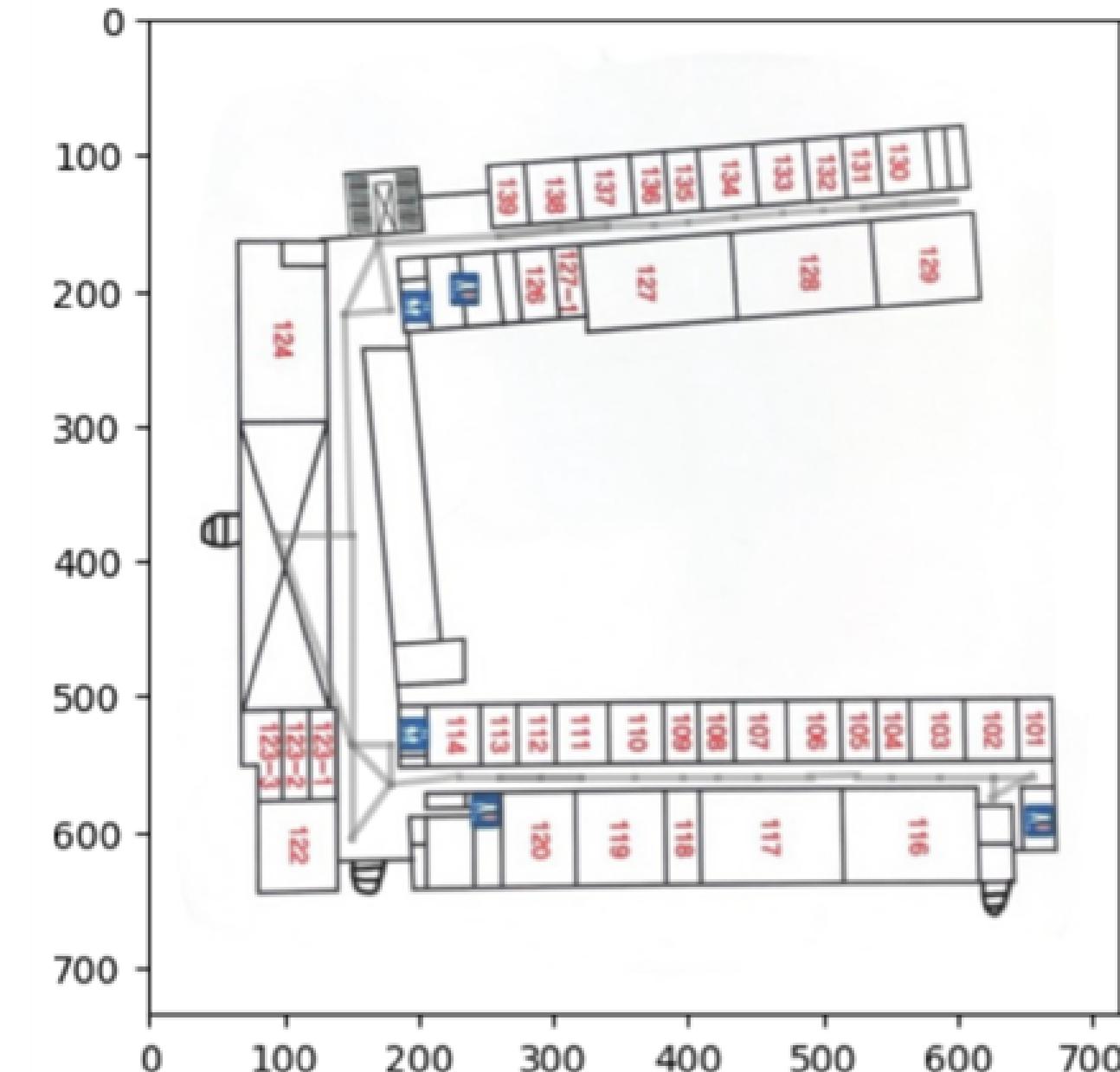
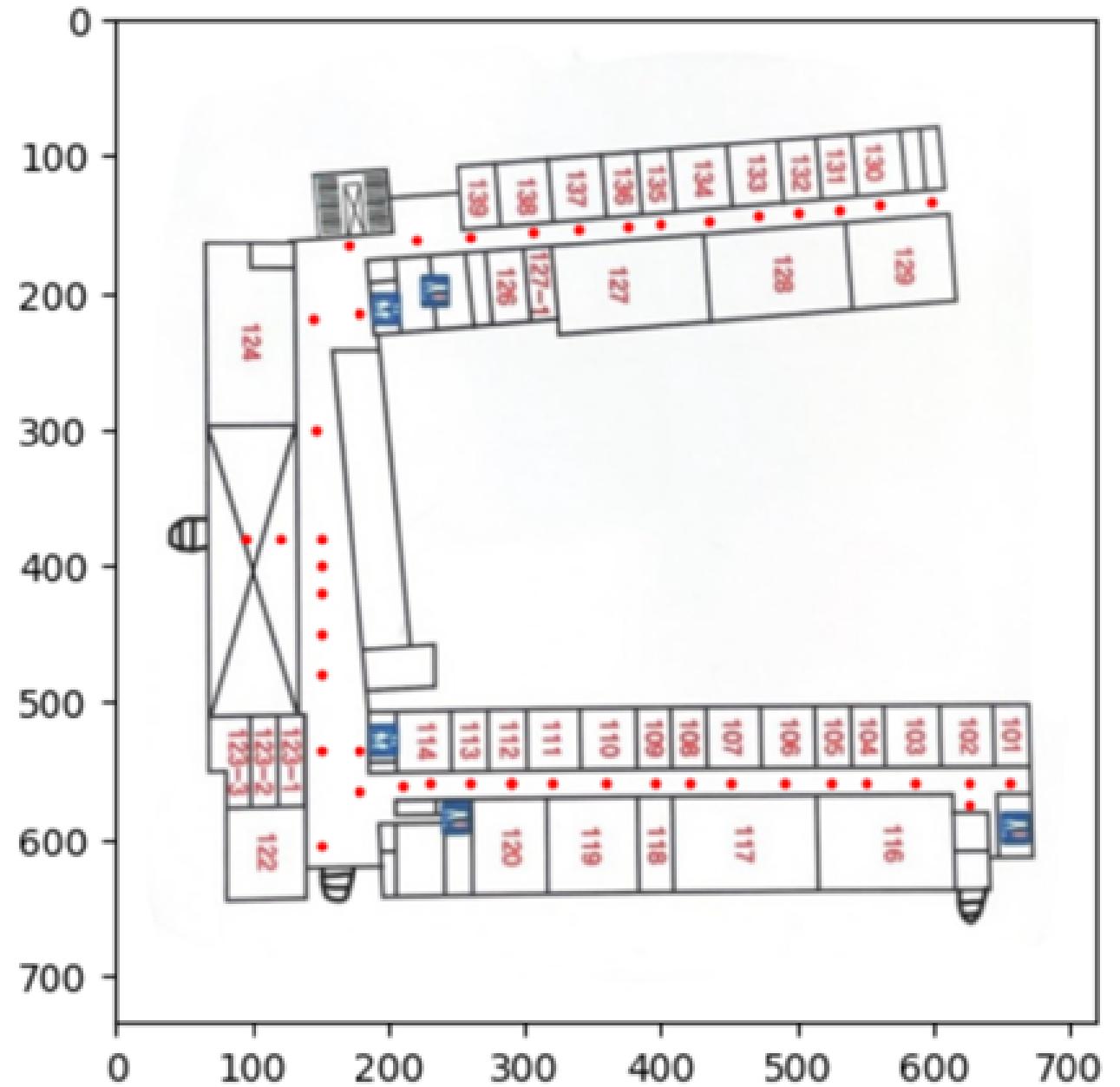


```
"lat": 36.1539771,  
"lng": 128.3902984
```

02 길안내-위치보정

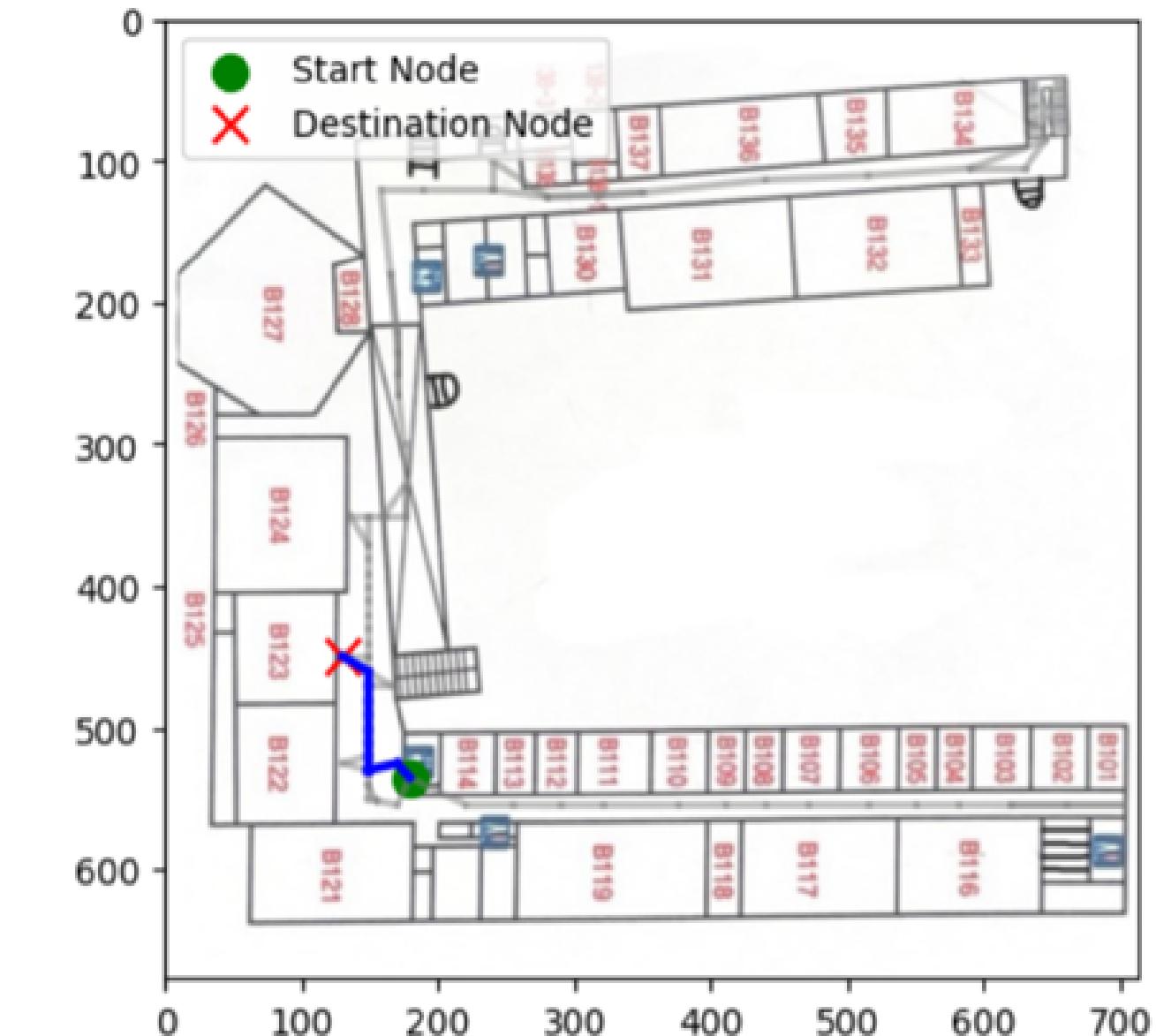
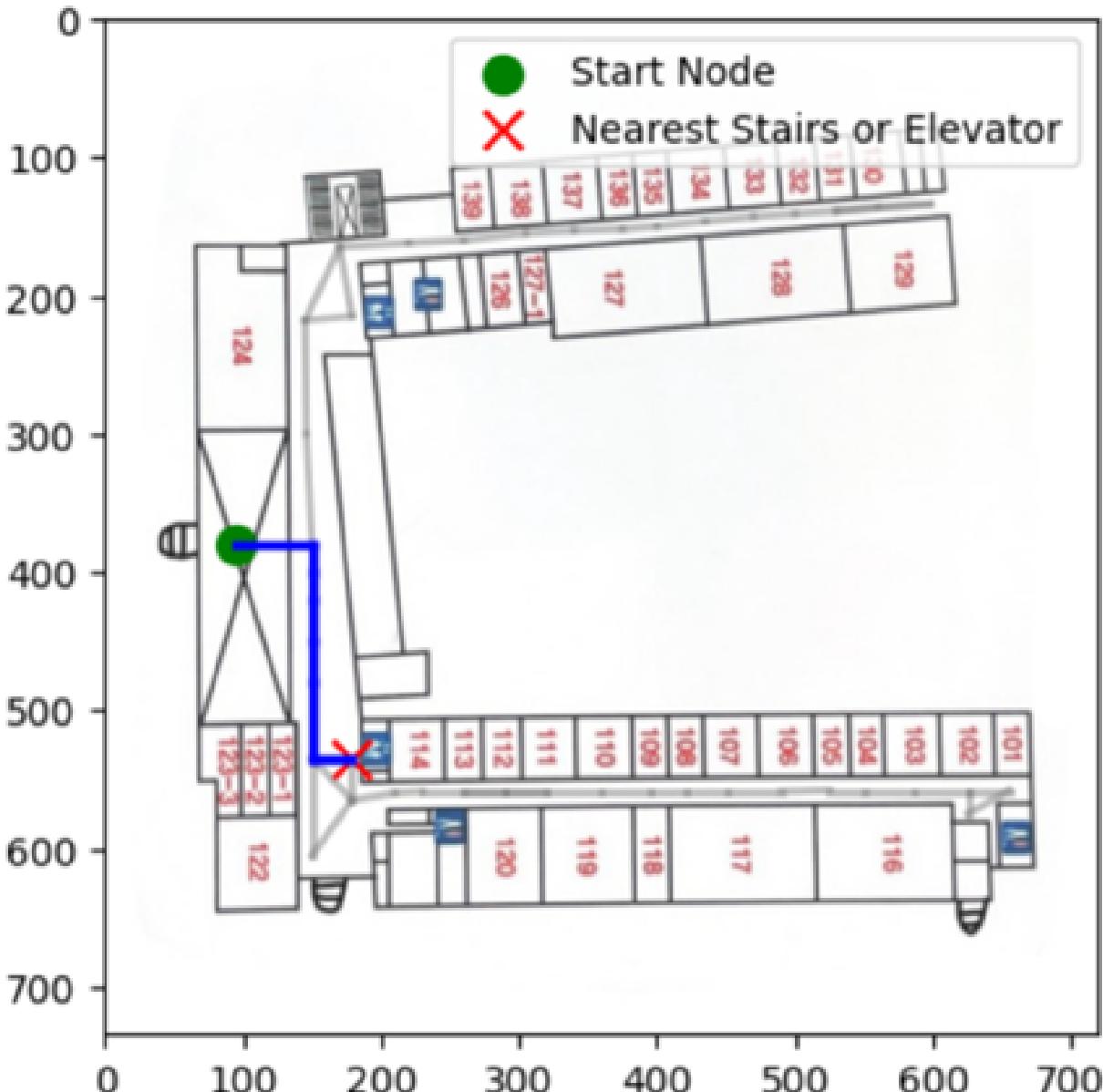


02 길안내 - 건물 안



02 길안내 - 건물 안

출발지 = d1_1
목적지 = db_123



02 웹사이트 생성

django

```
PS C:\Users\namin> django-admin startproject A
PS C:\Users\namin> cd A
PS C:\Users\namin\A> python manage.py startapp B
PS C:\Users\namin\A> python manage.py runserver
Watching for file changes with StatReloader
Performing system checks...

System check identified no issues (0 silenced).

December 15, 2023 - 00:33:41
Django version 4.2.7, using settings 'A.settings'
Starting development server at http://127.0.0.1:8000/
Quit the server with CTRL-BREAK.
```

- 📁 media
- 📁 pr
- 📁 prapp
- 📁 venv
- 📄 db.sqlite3
- 📄 manage

startproject = pr
startapp = prapp

02 웹사이트 생성

```
# myapp/forms.py

from django import forms
from .models import UploadedImage

class UploadImageForm(forms.ModelForm):
    class Meta:
        model = UploadedImage
        fields = ['image']
```

forms.py

```
# myapp/models.py

from django.db import models

class UploadedImage(models.Model):
    image = models.ImageField(upload_to='uploads/')
```

models.py

```
from django.shortcuts import render, redirect
from .forms import UploadImageForm
from .models import UploadedImage
import folium
from .pre import *
from .direction import *

def upload_image(request):
    if request.method == 'POST':
        form = UploadImageForm(request.POST, request.FILES)
        if form.is_valid():
            uploaded_image = form.save()
            image_path = uploaded_image.image.path
            result = predict(image_path)
            mymap = direction(get_geolocation(), result)
            map_html = mymap._repr_html_()

            return render(request, 'prapp/map.html', {'map_html': map_html})
        else:
            form = UploadImageForm()

    return render(request, 'prapp/upload_image.html', {'form': form})

def success(request):
    return render(request, 'prapp/success.html')
```

views.py

02 웹사이트 생성

```
"""
pr URL Configuration

The `urlpatterns` list routes URLs to views. For more information
please see:
    https://docs.djangoproject.com/en/3.2/topics/http/urls/
Examples:
Function views
    1. Add an import: from my_app import views
    2. Add a URL to urlpatterns: path('', views.home, name='home')
Class-based views
    1. Add an import: from other_app.views import Home
    2. Add a URL to urlpatterns: path('', Home.as_view(), name='home')
Including another URLconf
    1. Import the include() function: from django.urls import include,
       path
    2. Add a URL to urlpatterns: path('blog/', include('blog.urls'))
"""

# mysite/urls.py

# mysite/urls.py
```

```
from django.contrib import admin
from django.urls import path, include
from django.conf import settings
from django.conf.urls.static import static

urlpatterns = [
    path('admin/', admin.site.urls),
    path('', include('prapp.urls')),
]

urlpatterns += static(settings.MEDIA_URL,
document_root=settings.MEDIA_ROOT)
```

project(pr)의 urls

```
# myapp/urls.py

from django.urls import path
from .views import upload_image, success

urlpatterns = [
    path('', upload_image, name='upload_image'),
    path('success/', success, name='success'),
]
```

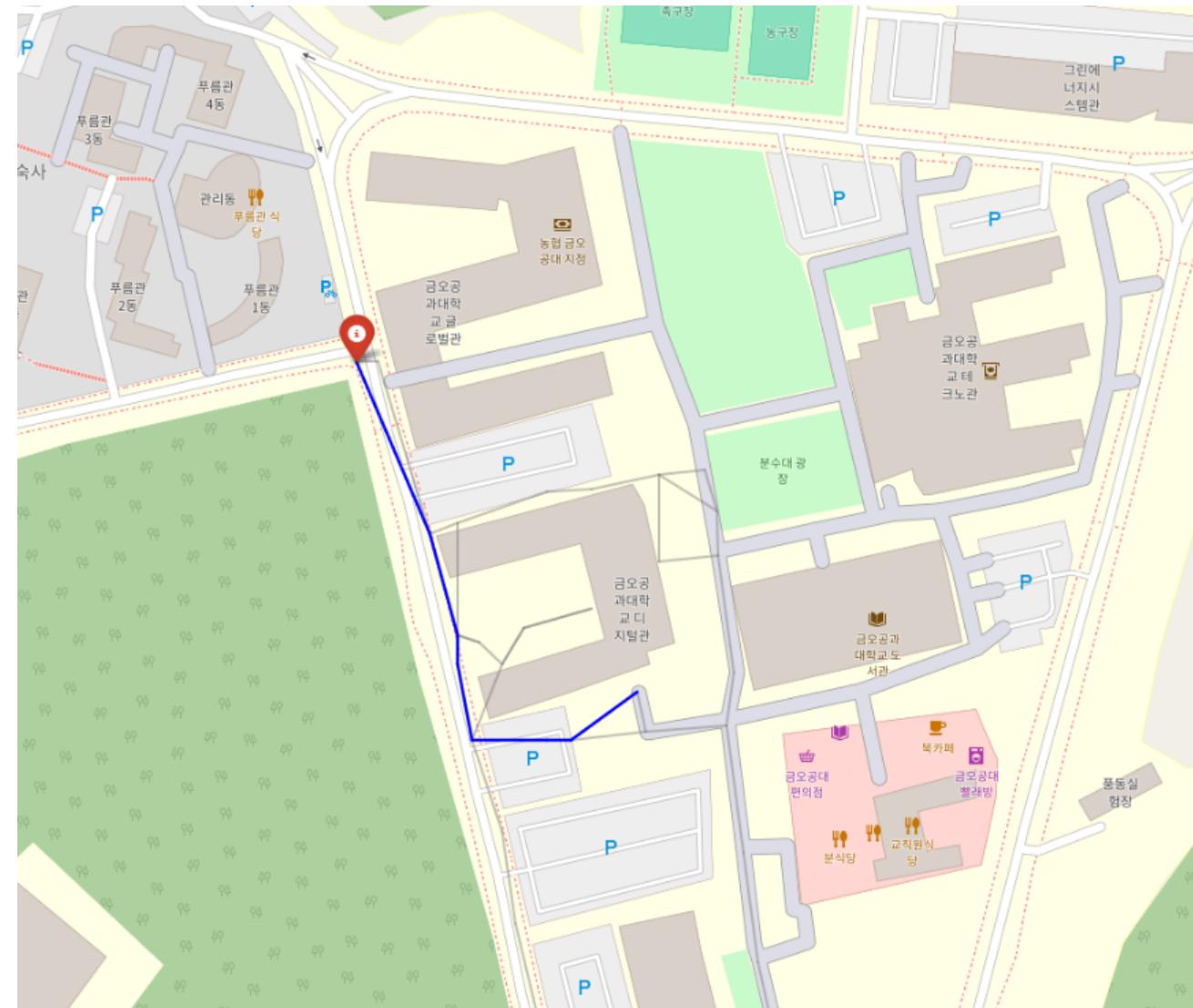
app(prapp)의 urls

Image: 파일 선택 db_2.jpg

Upload Image



db_2.jpg



03

한계

04 한계

이미지 분류의 정확도

pororo OCR

gps 정확도

층수 구별

04

느낀점

05

참고자료

06 참고자료

https://github.com/yunwoong7/korean_ocr_using_pororo

<https://velog.io/@yvvyoon/python-current-location-coordinate>

<https://scshim.tistory.com/562>

<https://docs.djangoproject.com/en/3.2/intro/tutorial01/>

들어주셔서
감사합니다