

# Pothole detection application note

developed by CHING-MIN HU

Please find application at: <https://drive.google.com/open?id=1CjilghGkJvECX--5ZWBj2O268AoBUTxz>

## Instruction:

The application is using to check whether an image contains pothole or not. It let user to select an image from device and upload to server and shows the result (Yes or No). The server side judge the result through a pretrained CNN model which has accuracy about 85%. This CNN model was trained by Dandan Zhao.

## Development environments:

system: Windows 10

client side: HTML with Javascript and css

server side: python 3.7.5

## Requirement:

System: windows 10 (not sure whether it can work in other system or not)

The version be module in python must be:

1. django 2.2.6 (the downward compatibility of django is not good, may failed in another version)
2. keras 2.3.1 or more recent version (less than 2.3.1: would have TypeError)  
(TypeError: Unexpected keyword argument passed to optimizer: learning\_rate)

Python module import: (make sure to install in device):

django (2.2.6) , sklearn (0.19.2) , tensorflow (1.13.1), numpy (1.16.3) , keras (2.3.1)

ps. The information in () after the package is the version what I have in developing.

ps. Tip: check the version of module

take django as an example:

in anaconda prompt: use the command

```
python -c "import django; print(django.__version__)"
```

in .py or .ipynb:

```
import Django
print(django.__version__)
```

## Suggestion:

Use Google Chrome to browse, since same CSS type is not support in other browsers.

## Manipulate:

Use Anaconda prompt and cd to the project directory and use the command `python manage.py runserver`. Then in browser, go to <http://127.0.0.1:8000/polls/> .

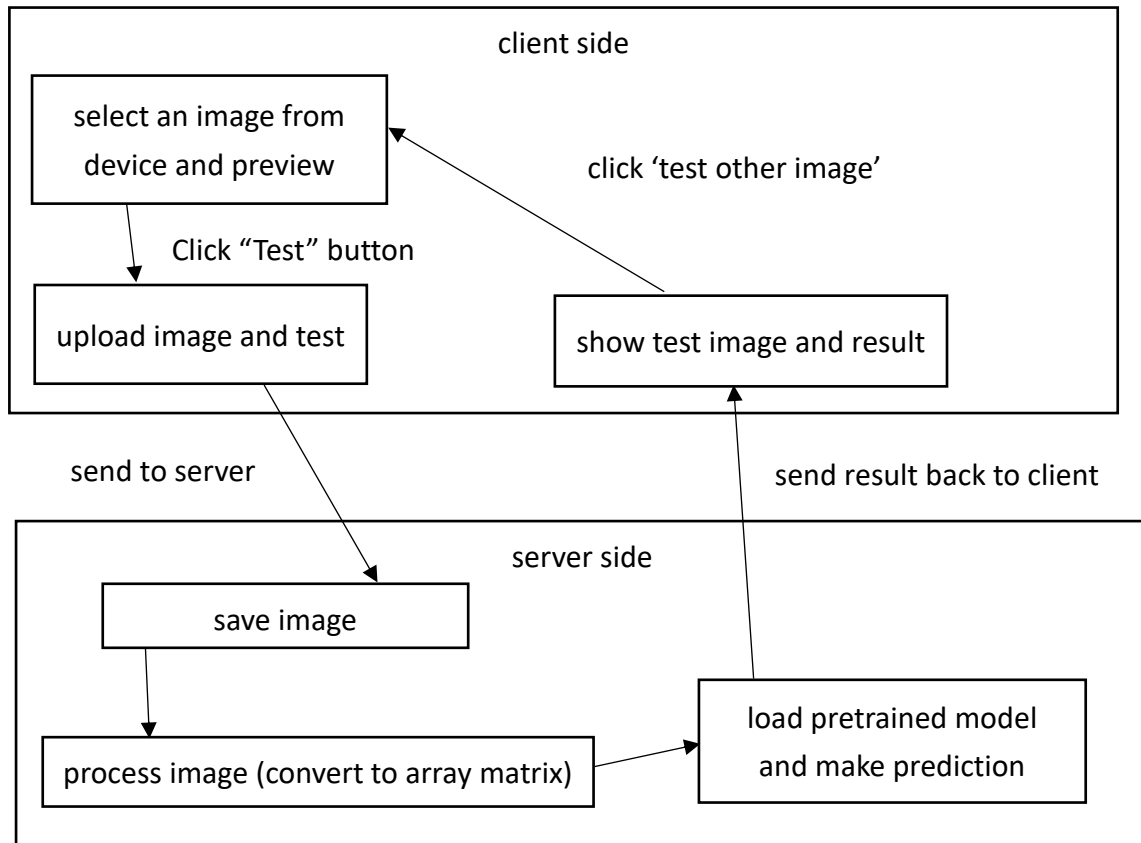
**Process:** (client **server both** )

select an image → click 'Test' button → **image send to server** → **save image** → **process image** → **load pretrained model** → **make prediction** → **send result (Yes or No) to client**

→ show result and uploaded image

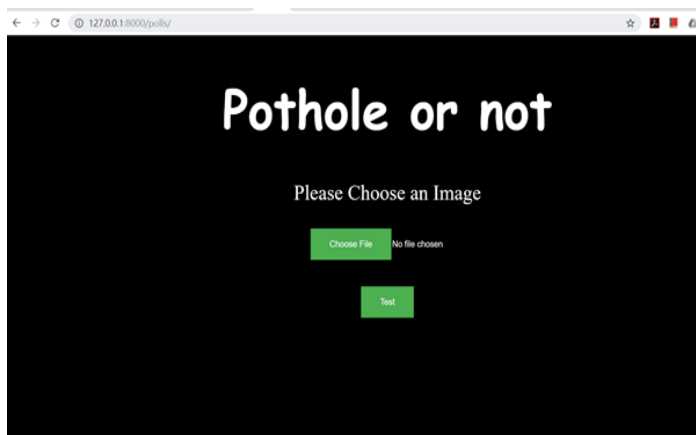
if click on 'test other image' then restart the process.

**Design structure:**



**Some demo screenshot:**

Initial client side



Select an image from device



Result: yes



Test other image



Result: no

