

AUTOMATIC ASSISTANCE REQUEST

Using Object Detection

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OVERVIEW

Object detection technology has seen a rapid adoption rate in various and diverse industries. It helps self-driving cars safely navigate through traffic, spots violent behavior in a crowded place, assists sports teams analyze and build scouting reports, ensures proper quality control of parts in manufacturing, among many, many other things. And these are just scratching the surface of what object detection technology can do! In this project we are going to develop an object detection system to request assistance for disabled and people who need assistance in real time.

GOALS

- Design a model which can detect wheelchairs, stretchers, crutches etc.. in the image.
- Build an API which can make some function when a desired object is present in the image.

USE CASES

1. To replace sensors used in operations like automatic door opening which consumes lot of energy in every case.
2. Using object detection, we can build a model which conserves energy by opening the door only when there is a disabled person who needs the help of automated machine.

DATA

1. Google image data :
https://storage.googleapis.com/openimages/2018_04/bbox_labels_600_hierarchy_visualizer/circle.html
2. Selected the corpus of images of objects which we want our model to identify in the images passed to it.

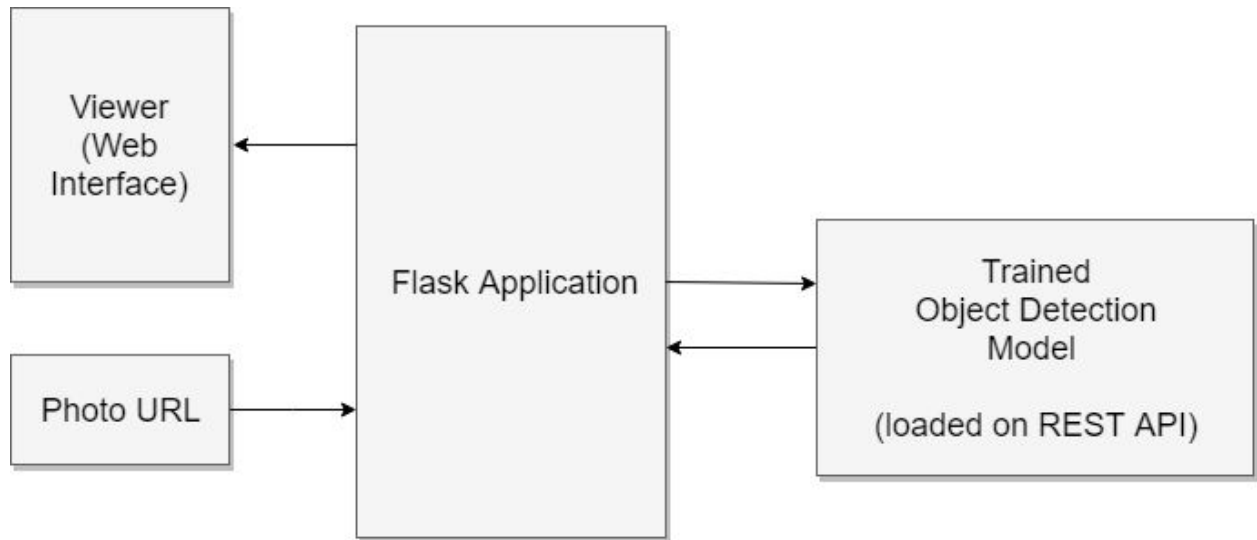
PROCESS OUTLINE

1. Data preprocessing:
 - a. Collecting the images and resizing them to give a standard type of input to the model.
 - b. Using data augmentation on the images to generate more data.
2. Study of available object detection approaches and choosing the best one.
3. Design of a pipeline and system to implement this approach and discussion on the system's capabilities.
4. Deploy the Model on a Cloud Computing Platform.
5. Build a web application to demonstrate the prediction and recommendation results.

MILESTONE

DAYS	TASKS
Day 1-2	Data collection and preprocessing
Day 3-9	Building different models and choosing the best model
Day 10-12	Building an API
Day 13	Deployment of model
Day 14	Documentation

ARCHITECTURE



REFERENCES

1. <https://www.kaggle.com/c/google-ai-open-images-object-detection-track>
2. <https://towardsdatascience.com/faster-r-cnn-object-detection-implemented-by-keras-for-custom-data-from-googles-open-images-125f62b9141a>