SYNOPSIS

ON

Object Detection

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INTRODUCTION

The deeper we dive into technology , the more it seems we try to blend the physical and virtual worlds together.

And when we do blend the virtual worlds with the reality of our lives, it becomes like a dream come true.

With such philosophy, in this project, we are going to be implementing Object Detection inside user provided images and develop our own web application to be accessible by anyone in the world.

For instance, imagine your machine telling you when are you smiling or what are you wearing on your head , that's the kind of technology we are talking about.

EXISTING SYSTEM

There exists many systems implementing Machine Learning Algorithms to detect the surroundings or objects in an image, but in order to make our system better, we will be training the model with more specific data to bring the results to utmost precision.

USE OF THE PROJECT

The use of the final product will be immense as it can be used to detect numerous objects inside an image or certain characteristics, such as ;-

1. Tracking helmets on the riders of 2 wheelers on a busy road.
2. Detecting facial expressions to determine how the person is feeling and use the result to determine next course of action.
3. Finding criminals or missing people if the cameras get installed on busy roads or public places.
4. Many more as such…

Feasibility of Project

The feasibility of the product varies from place to place.
The data gets bigger and harder to manage as the product gets equipped with more and more tasks.

For example, inside an office it will be easy to determine intruders/guests/unknown people from employees as the employee data can be saved and trained inside the model so that the system will know the identity of any specific person. It is feasible since the camera installations and budget can be under a certain limit which can be afforded by a company.

On a large scale , such as on a busy road , It will get harder to detect the face of each and every person in real time and will require much bigger computer resources to work efficiently.

So the feasibility matters greatly on the budget or the Computer Resources.

FUNCTIONAL SPECIFICATION

The project can function with just a camera and computer resources, on any browser application. It is provided with snapshots or pictures to detect the objects inside the image, such as faces , vehicles, boxes, helmets, books, pen, etc.

It analyses the image in real time and gives the result by highlighting the object under a square and telling about the objects inside that image.

There can be options to choose from , which will decide the algorithm working and also the feature being chosen , whether it has to detect the facial expressions in a person's image or it has to detect objects inside a landscape.

Software Specification:

- Technology Implemented : Machine Learning
- Language Used : Python
- Database : AWS Cloud
- User Interface Design : Django
- Web Browser : Chrome

Hardware Requirements:

- Processor : Intel i3 and above
- Operating System : Windows 10
- RAM : 4GB minimum
- Hardware Devices : PC , Camera (for real time use case)
- Hard disk : Minimum 150MB free space,
- Display : Intel Graphics

FUTURE SCOPE

The future scope of this technology is vast as the computers are learning new stuff each day and evolving. Anyone would want their machines to see the things you can see as by analyzing the surroundings, the machine can be aware of the things in same way as a person would.

Until a better technology comes , we are going to be detecting images in real time for as many components as possible to make our lives easier.

It’s not just about our daily surroundings, if this technology is implemented with the right approach then even the space objects can be detected at a much faster rate than what it is today.