Computer Vision for the Use of Smart Technologies

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Presentation will Include

- Product Pitch

  - What is our product?

  - How does our product work?

  - What else needs to be added to our product in order to make it
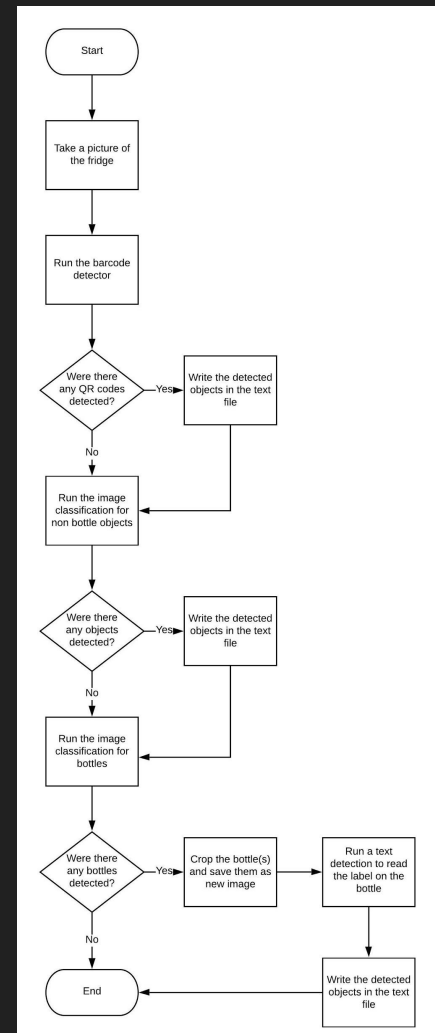
    market-ready?

Product Pitch: Smart Fridge Monitoring System

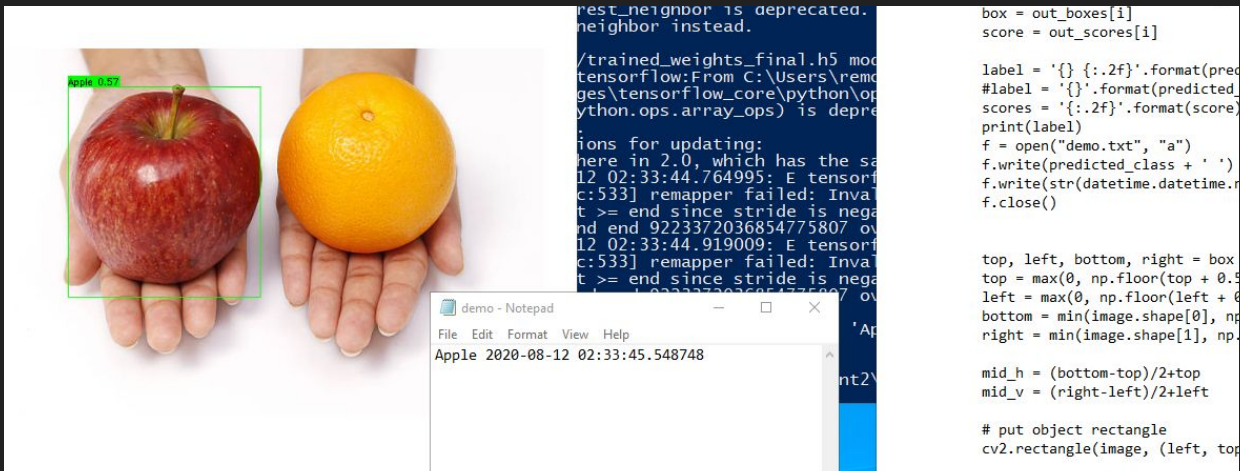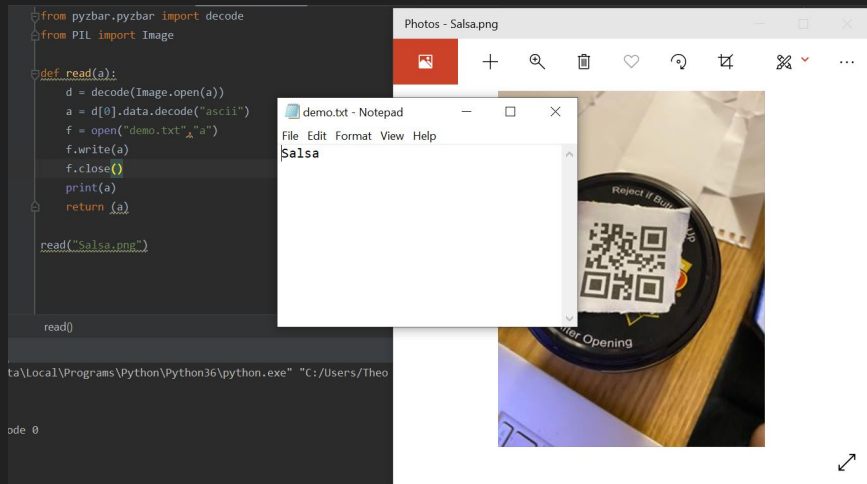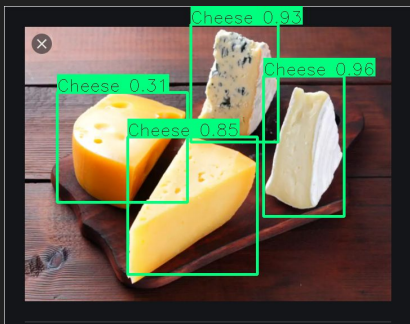What does the system do (ideal final implementation)

- Remote real time monitoring of user's fridge inventory

- Discern between objects to allow the user to know what food items are there and what they may need

- Allow users to see from a mobile application the current status and possible recipes given the items

Current Components

- Image classification using trained neural networks
- Can discern basic food items, different bottles of liquids
- QR scanner allows for maximum accuracy
- Information about the food is output to text file

Examples

```
(yolo) PS C:\Users\remote_student1\Desktop\Yolo> python .\main.py
```

demo - Notepad

File Edit Format View Help

```
2020-08-12 04:01:34.829824
Salsa
Cheese
milk
```

How is Data Stored?

1 - The text file is created by the QR Code detector

2 - The image classification appends to this same text file with new information

3 - The text detector also adds to this list

Important Terms

OpenCV: A library of programming functions mainly aimed at real-time computer vision. This was used to read and write to images.

YOLO V3: Yolo is a network that is able to perform real-time object detection. Using deep learning algorithms combined with a dataset of images, YOLO is able to output bounding boxes around objects for which it is trained to detect.

TensorFlow: Tensorflow was used to train the image classification datasets implemented using YOLO V3. It is an end-to-end open-source platform for machine learning.

Future Components

- Better text recognition for bottles

    - Progress made, not perfected

- Real time detection

    - Making the script run video doing the exact same thing as now, just frame by frame

- Database entries

    - Linked with recipe possibilities or website

- User Interface

    - Mobile application for remote access to information