



Objectives

Create a computer vision system used for recognizing, labeling, and tracking items placed in a container (e.g. fridge). In addition, we will develop a phone app for remote tracking of the items placed inside.

- Register all the objects in the container
- Automatically classify their categories
- Keep track of their status (time of arrival/departure)
- Remotely examine the inventory by mobile app or web

Introduction

It often happens that items placed in a fridge are forgotten and end up going bad. A monitoring system based on computer vision that keeps track of everything within a closed container would definitely prevent such food wasting.

This project also has a server that stores inventory information, synchronizing it so the mobile app can notify the user when something is about to expire and reminds him to consume it.

Materials

Microcontroller (NVIDIA Jetson Nano)

Control the camera to process images

Server Store timestamps and container inventory info. Providing APIs for inquiries

Software Edge detection for location. Neural Network for classification

- Prototype wit Implement sin recognition
- Ourchase ded: components
- **4** Run OR proce machine
- **6** Replace phone dedicated can
- 6 Run OR proce
- Output Log items in a



ZotSight — Smart Object Tracking Chritopher Janzen, Radu Handolescu and Tianyi Yang University of California, Irvine

| | Milestones | |
|---------------------------------|--|--------|
| th phone cameras mple object | ZotSight | |
| icated | 10/13 10/27 11/10 11/24 12/08 12/22 01/05 01/19 02/02 0 Prototype with phone cameras 26 days 26 days 26 days 10 days 35 days 10 days <t< td=""><td>02/16</td></t<> | 02/16 |
| ess on local | Add second camera for location tracking 55 Desktop application development 46 days Recognition/localization script optimization 25 days | 5 days |
| e camera with nera | Build container to mount system | |
| ess on server database | Radu Handolescu, Christopher Janzen, Tianyi Yang Figure 1: Gantt Chart | |
| | | |



Figure 2: Schematic



Methods

Testings:

- Testing location detection and simple object classification
- Testing various objects (cans, bottles, packets)
- Testing barcode detection

Limitations:

- Current single-camera setup is limited to detect object with various height.
- Performance limitation on running NN.

References

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