Automatic Grocery Shopping Assistant
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Motivation
• Establish library for grocery shopping items, including package features and nutrition facts
• Mode 1 - Add image: upload a new item image to the library, extract and record features
• Mode 2 – Add label: recognize the text in nutrition facts photo, add to library as well
• Mode 3 – Detect items: match all the items in the photo with library, return item name and nutrition facts information

System Flow
- Take image
- i.e. Choose Mode 3
- Return Info
- Upload
- Image ready
- Output ready
- Ok ic, now retrieve image
- Process finished

Label Recognition
- Label image
- Color threshold
- Enhance contrast
- Phase correlation matching
- Global threshold
- Tesseract Text recognition

Image Matching
- Mode 1
  - Extract SIFT descriptors
  - Add into library
- Mode 3
  - Compute # of matches using SIFT
  - RANSAC with affine model
  - Score threshold
  - Choose best match in library

Preprocessing
- Average filter
- Extract MSER
- Separate items

Products:
- Cane sugar powder
  - Calories: 120kCal/30g