

# Final Project: Barcode Recognition

Due: January 11, 2023

December 16, 2022

## 1 Problem

Implement the algorithm of digital image processing (DIP) to recognize the barcode in the provided images, which are in the directory *images/*, and named as barcode digits. For example, the algorithm should output 4012467288415 for the image in Figure 1.



Figure 1: Barcode in an image

## 2 Implementation

- The recognition of barcodes is prerequisite, which can be decoded to digits, thus the recognition of digits is optional. All the images in this project contain barcodes of only EAN-13 format.
- Only DIP methods (*e.g.*, edge detection, image enhancement, morphological processing) are acceptable. Learning-based methods (*e.g.*, convolutional neural network) are forbidden.
- Using existing functions (*e.g.*, Canny, Dilation) is acceptable.

## 3 Submission

- Codes of any program language, and clear illustration of utilization. 1 ~ 3 images (not in the directory *images/*) will be used to evaluate the algorithm.
- A report to illustrate the proposed algorithm and show the recognition results as well as necessary intermediate results. No need to explain the implementation of codes.