Optical Character Recognition for Pill Bottles
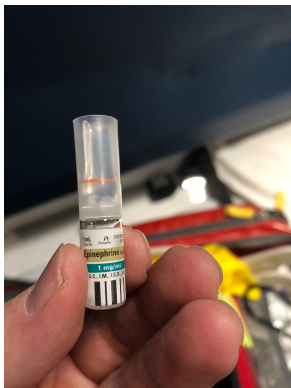
Ameera Chowdhury and NGFR Team at JPL

Jet Propulsion Laboratory

- In a medical emergency, it is crucial to correctly record a patient's medication and quickly communicate it to everyone on the medical team.
- Information about a patient's medication is often found on pill bottles at the scene.

Goal: From a photo of a medicine bottle, glean important information such as the name of the medication, the dose, the lot number, and the expiration date.

Real Example
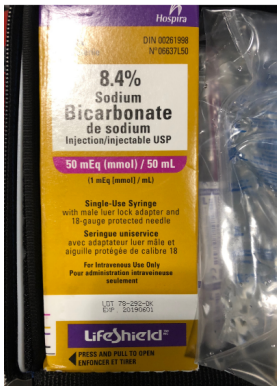
Hospira
DIN 00261998
N° 06637 L50
8.4%
Sodium
de sodium
50 mEq (mmol)/50 ml
Injection/injectable USP
(1 mEq [mmol] /mL)
Single-Use Syringe
with male luer lock adapter and
18-gauge protected needle
Seringue uniservice
avec adaptateur luer mâle et
aiguille protégée de calibre 18
For Intravenous Use Only
Pour administration intraveineuse
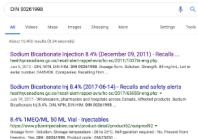seulement
LIT 8-292-0
EF 201gne01
TM/
MC
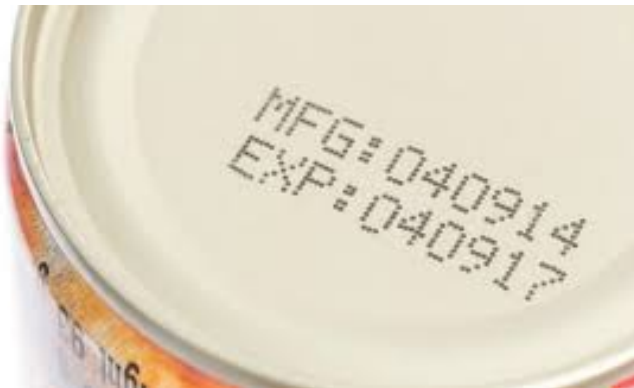PRESS AND PULL TO OPEN
ENFONCER ET TIRER

DIN 00261998 Sodium
Bicarbonate

EXP 20190601

- The DIN number can identify the medication.
- Lot numbers and expiration dates are difficult for OCR engines because they are written in a dot matrix font.

- No publicly available dataset for dot matrix fonts exists.
- Need to generate a dot matrix font dataset from scratch.
- Must train an OCR engine, like Tesseract, ourselves.

Generating a large dot matrix font dataset by

- randomly shifting dots
- deleting dots
- rotating and shearing

Python, LaTeX, Keras ImageDataGenerator, Tesseract