

Final project

{PCB defects detection}

Design a model to detect the PCB defects, where the dataset can be downloaded from:

https://www.kaggle.com/datasets/akhatova/pcb-defects?fbclid=IwAR3Yi_9wasNl4yXsNXxWqA8VNAcg-KDxj1eH3uZ_sLyTG57NHeVtEAB8Sno

The defects defined in the PCB dataset are:

Type1: missing hole: 115 files

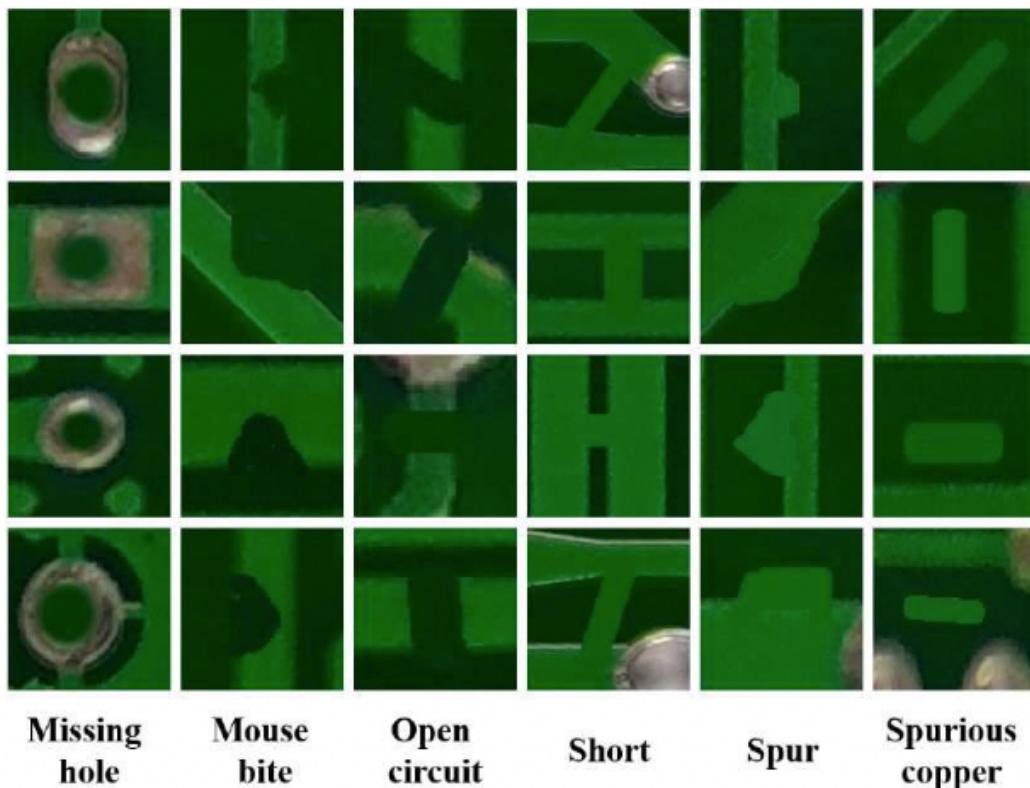
Type2: mouse bite: 115 files

Type3: open circuit: 116 files

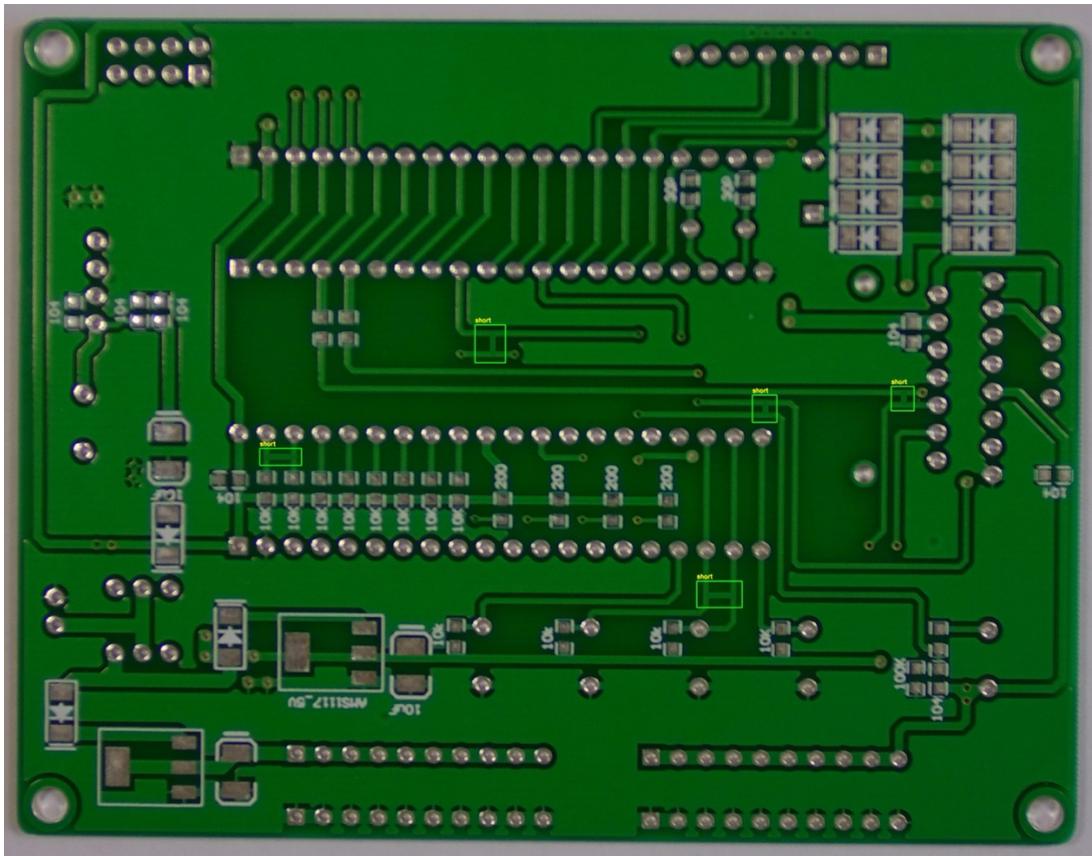
Type4: short: 116files

Type5: spur: 115files

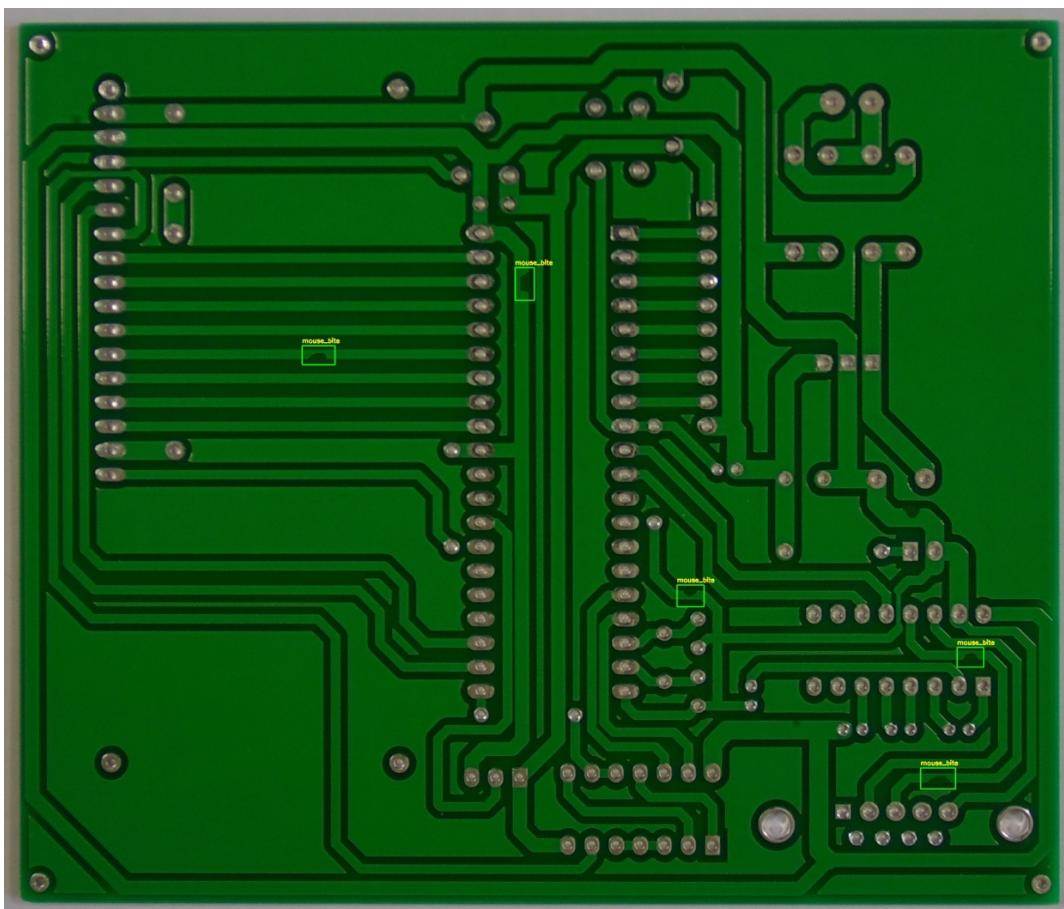
Type6: spurious copper: 116files



Short:

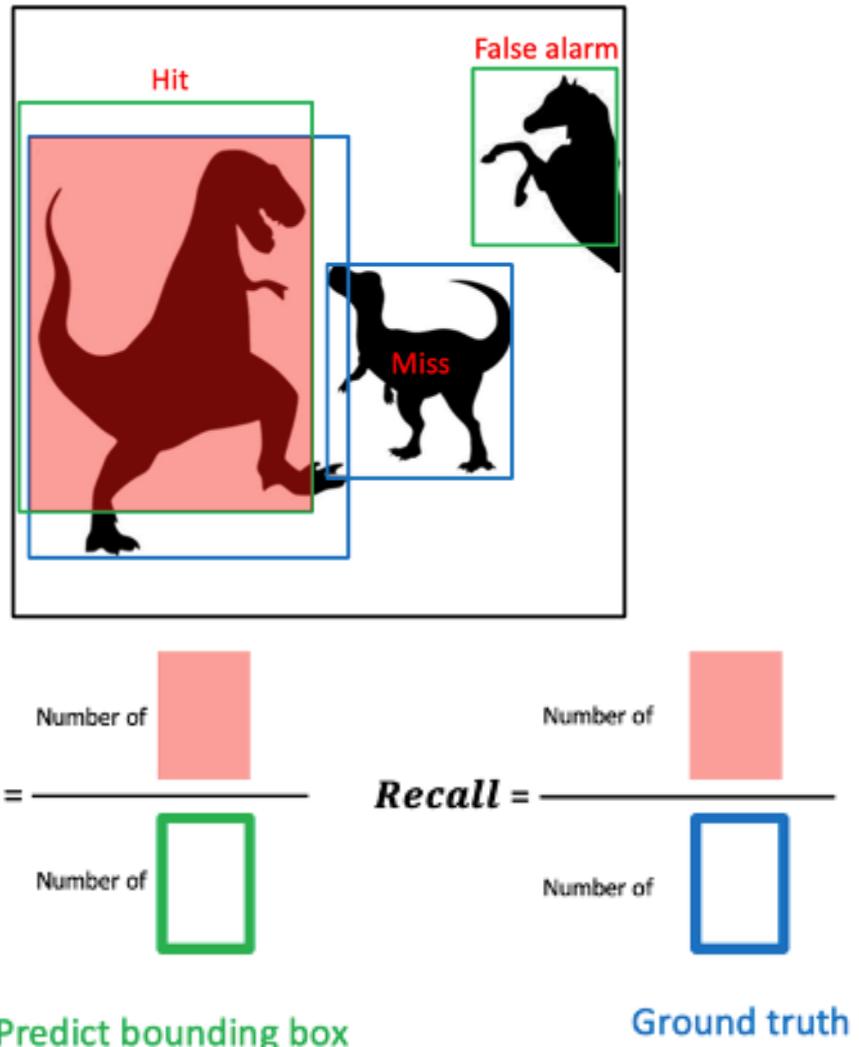


Mouse bite:



Evaluation:

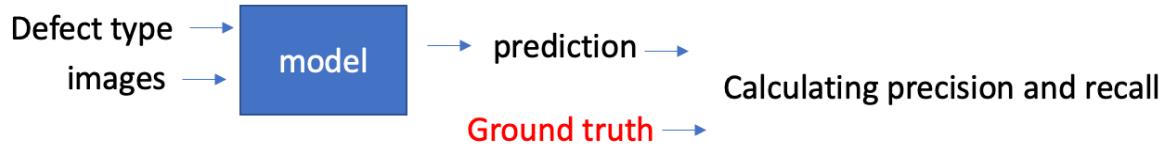
Precision and recall



Hit: $IoU \geq 0.3$

$$IoU = \frac{Area_{predict} \cap Area_{gt}}{Area_{predict} \cup Area_{gt}}$$

Testing flow:



Score:

An example:

| defect | precision | recall | score |
|--------|-----------|--------|-------|
| type 1 | 0.13 | 0.99 | 0 |
| type 2 | 0.44 | 0.56 | 2 |
| type 3 | | | |
| type 4 | 0.99 | 0.16 | 0 |
| type 5 | | | |
| type 6 | 0.76 | 0.78 | 4 |
| total | | | |

Prediction format:

The same as the annotation(.xml) in the dataset.

Homework Rules and Grading Policy

Final project will be graded by:

1. presentation
2. Demo
3. report

Deadline:

Check Point Report: 2022/6/6-2022/6/10

Demo & Presentation: 2022/6/13-2022/6/17

Upload report: 2022/6/17

Remind:

1. A slide (pdf, ppt) is needed for your presentation.
2. Please find a partner to form a team.
3. No reasons for delay and absence!