

My understanding of INTP23-ML-9

Piston Defect Detection Using Computer Vision

Piston Defect Detection is one of the most important aspects of production. With the rise of piston demands for safety , they demand for higher quality components is rising. This is where Computer Vision can provide an efficient alternative for commercial automated optical inspection to assist small scale manufacturers to do an automated inspection.

Week 3:

Whats happening this week:

- OpenCV Learning
- Basic Libraries Understanding
- Identifying different types of defects in piston
- Understanding the problem

StatementMy Understanding:

Project Definition: To develop an automated system that utilizes computer vision techniques to detect defects in pistons during the manufacturing process. By analyzing images of pistons, the system will identify various types of defects, such as scratches, cracks, or abnormal shapes, enabling early detection and reducing the likelihood of faulty pistons reaching the market. This project will contribute to improving the quality control processes and overall efficiency of piston manufacturing.

Understanding: The goal of the research is to develop a computerised system that can automatically check for and find piston manufacturing problems. This system will use computer vision techniques to look for any indications of flaws in photographs of pistons by analysing and interpreting digital images or videos. Images of pistons will be recorded using cameras or other imaging equipment during the production process. The automated system will then process these photographs and analyse the visual data using cutting-edge algorithms and methods. The automated system for flaw detection in pistons that uses computer vision techniques will boost quality control procedures, reduce the output of defective pistons, and increase manufacturing efficiency all around.

Approach:

After using multiple images we can classify images as defect images and without it this can be done by image processing and classified by computer vision.

Weekly Progress:

19th June, Friday

Work done:

- Learnt Basic Level of OOP reproducibility
- Regression Models in use
- Started Classification
- Read the data set and link provided in the meeting

Monday, 21st June, Wednesday

Learned about Image Processing.

Work done:

- Read The Links provided by you in the meeting
- Tried coding and Visualization from the same topic on github

Monday, 21th June, Wednesday

Work done:

- Read The Links provided by you in the meeting
- Tried coding and Visualization from the same topic on github

Monday, 24th June, Saturday

Learned about Image Processing.

Work done:

- Eda of topic
- cloud computing

