9. Image Analyzer-Based Auto Detection of Laser Marking Program

Problem statement -To auto detect of lesser marking machine part program w.r.t. to part loaded for marking.

Problem Description:

In the current process, five different variants of the ZF WG part are marked using a laser marking machine. Each variant requires a distinct laser marking program. At present, the selection of the correct program is done manually, which leads to a risk of operator error, potential mismatch between part and marking, and increased cycle time.

There is a need for an automated system that can identify the part variant loaded on the laser marking station and automatically select and trigger the corresponding marking program to ensure accuracy, consistency, and efficiency in production.

Hint- For this we can add some identification marks on part & we take a photo of it with cameras, the image will transfer to pc & with that image it will select lesser machine part program.

Objective:

To develop an **automated part identification and laser program selection system** that:

1. Detects and identifies the ZF WG part variant using camera-based image recognition.
2. Automatically selects and loads the corresponding laser marking program on the machine.
3. Minimizes human intervention and eliminates the risk of incorrect marking.
4. Enhances process reliability, traceability, and productivity.