

Camera-Based Inspection System – VRM Metazine (2023–24)

One of the persistent challenges in our blanking process was the inspection of burrs—tiny raised edges formed on cut metal sheets. Operators would manually check thousands of components each day, straining their eyes and often missing subtle defects. The cost of missed burrs was high: rejected consignments, rework, and customer dissatisfaction.

Inspired by automated inspection systems I had seen in larger corporations, I designed a prototype camera-based defect detection system for our line. I used an industrial camera mounted along the conveyor, coupled with simple computer vision algorithms to detect inconsistencies in edge smoothness. After weeks of calibration—adjusting for lighting, sheet reflectivity, and edge orientation—the system could reliably identify burrs with much greater accuracy than manual inspection.

Once deployed, the system reduced burr-related rejections by **16%** within the first quarter. Equally important, it freed operators from monotonous visual scanning, allowing them to focus on higher-value tasks. For me, this project was a lesson in how engineering innovation need not always be large-scale; sometimes, a modest, focused intervention can have ripple effects across quality, efficiency, and worker well-being.