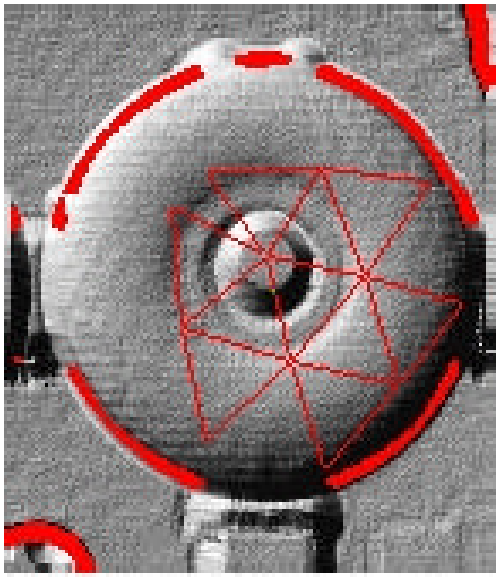
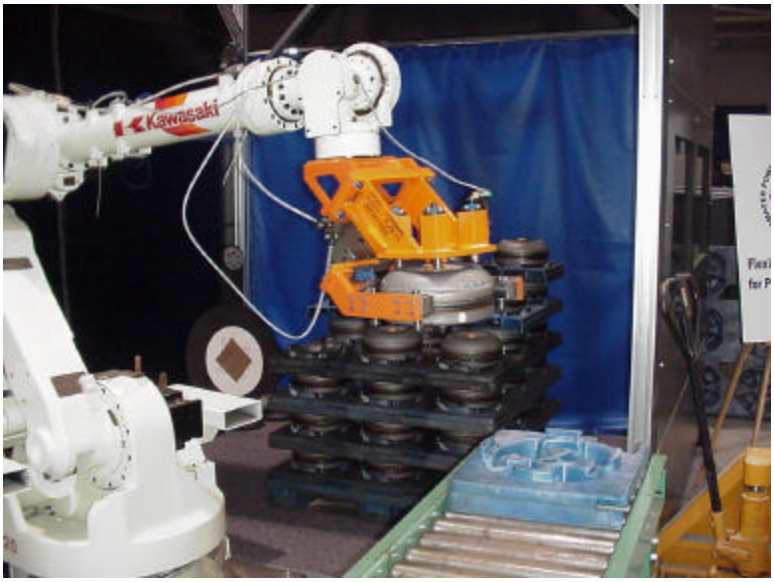
MACHINE VISION SYSTEM



Tripod operator finds a torque converter using a LIDAR Image



Unattended robot automatically locates and precisely places a torque converter

The Naval Research Laboratory (NRL) has developed a method for the rapid recognition of surface shapes in range images. This method can be used to train robots to perform automated assembly tasks with unprecedented precision. The same method could be used for face recognition. The NRL technique involves "tripod operators" (US Patent No. 6,393,143) which extract sample points from a range image in order to recognize the underlying surface shape. Coupled with a suitable range imaging scanner, such as the NRL Correlation Scanner (US Patent No. 5,838,428), this technique enables the automation of many tasks previously relegated to human labor. The software recognizes images within tens of milliseconds.

Features and advantages include:

- Able to differentiate parts in cluttered environments
- Applicable to nearly any surface shape
- Extremely accurate recognition
- Completely invariant to viewpoint
- Insensitive to variation in lighting
- High speed (milliseconds)
- Easily trained from a range image or computer model

Applications include:

- Parts recognition & location for automated industrial assembly and inspection
- Range-based face recognition
- Automatic target recognition
- Mobile robot navigation

Licenses are available to companies interested in commercialization.

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