

OMIC R&D TECHNOLOGY BOARD

CONCEPTUAL ABSTRACT



TITLE: Robotic vision system for quantitative & qualitative inspection (including composites, oily reflective parts)

RELATED ROAD-MAPPING DESIGNATION ID#: R7.

SUPPORTIVE INDUSTRY: ATI, Boeing, Blount

PROJECT TYPE: General Project - Robotics & Sensors

PROBLEM STATEMENT (What Are We Trying to Solve?): Manual inspection is time consuming and inconsistent. Quantitative inspection can be repetitive and minimally engaging for an observer, leading to distractions and inaccurate results. Qualitative inspection requires a skillset that will vary from operator to operator, if not within the same person, leading to inconsistent results. Robotic vision seeks to remove these inefficiencies but lacks at observing composite materials and oily/reflective surfaces.

PROJECT DESCRIPTION: A robust and repeatable process for inspection is needed, specifically focusing on composite and reflective materials. This work will require a robot and a vision inspection system. Researcher will work with SME & industry to select composite and oily/reflective parts for inspection. It is recommended for the scope of the project to keep prior mentioned variables at a minimum. Consider 1-2 non-complex geometries, and 1-2 composites/reflective surfaces, respectively.

Identify Related OMIC R&D Resources:

- 3D Capture robot scanning cell with anti-reflective spray coating
- Robotics Researcher – Jordan Meader, Machining Researcher – Cody Apple

PROJECT DELIVERABLES:

1. Identify technologies to meet material needs
2. Identify company tech to move forward with
3. Functional demo/proof of concept
4. Inspection of composite
5. Inspection of reflective
6. Analysis of inspections
7. Report & Presentation