

OMIC R&D TECHNOLOGY BOARD

CONCEPTUAL ABSTRACT



TITLE: OMIC-AM21 Additive Mold Manufacturing P2 of OMP412

RELATED ROAD-MAPPING DESIGNATION ID#: AM21

SUPPORTIVE INDUSTRY: DAIMLER, MITSUBISHI, GEFERTEC.

PROJECT TYPE: General Project (Phase 2 of OMP412 & OMP404).

PROBLEM STATEMENT (What Are We Trying to Solve?): This project seeks potential solutions to reduce the total cost of tooling and/or part production as well as to potentially accelerate procurement processes. In addition, this research attempts to leverage a selected AM technology for an optimum design for AM mold. This can enhance the feasibility of tool design to a great extent. Proof of concept of leveraging AM technology is highly favored. The outcomes of the project enabled the research team to address that the selected AM technology can offer a cost and time-efficient tooling solution for a high-volume production.

PROJECT DESCRIPTION: This approach can offer the best practices for mold making using AM technologies through following attempts:

- To incorporate modular tooling, multi material inserts, and conformal cooling system
- To evaluate the feasibility of variance of similar parts
- To use a configurable mold base
- To reduce assembly times

Identify Related OMIC R&D Resources: Proposing researchers should use their best judgment in deciding on the optimal resources for the research. To further aid in this decision, the OMIC staff has taken the initiative to best identify on-site resources (machines, equipment, and staff) that may relate to the scope of this research. Please recognize that researchers are not limited to these resources.

- Identify OMIC machines: The spectrum of capabilities at OMIC R&D can be reviewed at the following link: <https://www.omic.us/explore/facility>
- OMIC Staff: Kyle McGann.

PROJECT DELIVERABLES:

- Additively manufactured mold
- Parts that are injection molded from additively manufactured mold
- Final report
- Final presentation

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SPECIAL NOTE: It should be recognized that this Conceptual Abstract is written based on comments collected during OMIC R&D Road-mapping workshop and based on industries need for applied research. However, researchers as SMEs, are encouraged to lend specific technical feedback to further refine the Project Description and or Project Outcomes. The proposing researcher may do so either directly to OMIC R&D, or in the submitting proposal.

UTILIZATION OF OMIC RESOURCES: Researchers are encouraged to utilize the capital and personnel resources available on the OMIC R&D campus in their proposals. Use of OMIC time and machines should be included in the Proposal funding request. If use of OMIC resources are not identified in a proposal and are requested during, the project sponsor will be responsible for requesting a costed project amendment from the Tech Board.

PROJECT UPDATE EXPECTATIONS: Researchers are required to have monthly update discussion with OMIC R&D to provide a summary update on project status. This is done by way of a user-friendly format known as the OMIC 6-Block update. Typically, these meetings are scheduled on the first Wednesday and Thursday of each month. Secondly, depending on the scope of the project, OMIC R&D's industry Tech Board representatives are often interested in periodic project updates, and even in project participation. Researchers are required to communicate with supportive industry and facilitate communications as required.

PROJECT DURATION: It is OMIC R&D's strong preference that duration of a General Project aligns with the academic calendar cycle (July 2022 to June 2023). It is preferred that the project be completed by June 2023. Researchers are encouraged to factor in variables such as contracting, student hiring (if needed), procurement, holidays, and travel. It has been OMIC R&D's experience that a projects useful working duration is typically 9 to 10 months. Researchers are also encouraged to lend feedback, and to adjust the scope of work to best fit this preferred timeframe. Additionally, it is reasonable to even recommend phasing breakdowns to the project. In some unique circumstances, if the project is to take significantly longer than the duration of the academic year, this reasoning should be explicitly explained in the proposal.

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