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Development and application of metal Additive Manufacturing (AM) have been growing rapidly in industry. It is predicted that the market for metal AM will reach US\$24Billion in 2024. Current metal AM, however, is an expensive and unreliable process. For the widely-used Powder Bed Fusion technology, the high cost and process quality are mostly determined by a key component of a metal AM system, the gantry assembly and laser scanning system. And the new scanning system would require a new build chamber, to take the advantage of the unique characteristics of the gantry system.

This project will aim at refining a build chamber design, prototyping the system, and building the assembly controller and its accompanying software. The project will be present as a sub-system of a metal AM machine, therefore