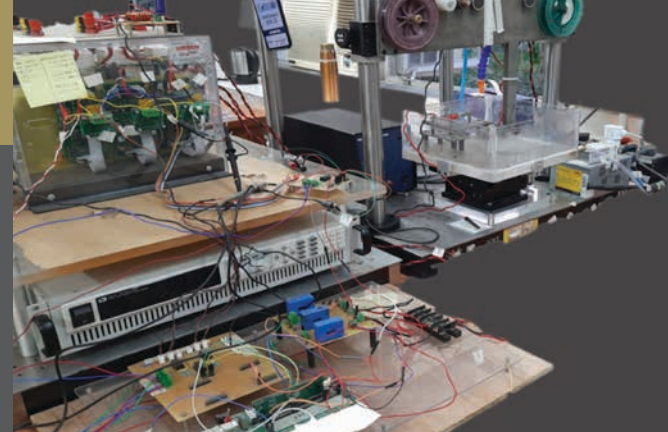


Customizable Miniature Wire EDM



Problem Statement: Indian MSME sector (plastic die makers, makers of watch parts, makers of small parts for medical equipment, etc.) depends on specialised machining shops' machinery for high precision cutting and complicated geometries out of metallic blocks. These factors add to the time and money involved in manufacturing. Moreover, commercial machines are large in size: they usually occupy an area of 10 ft × 10 ft × 10 ft. In addition, they are very costly and mostly imported outside India. The cost ranges from INR 20 lakhs to 2 crores for importing them. Therefore, many MSME level industries depend on specialised wire EDM shops to get their jobs done. The wire EDM is the workhorse of precision manufacturing. However, the commercial machines lack customizability – therefore, they cannot be used by research/educational institutes – which require that the wire EDM machines be tweaked easily. The Customisable Miniature - wire electric discharge machining (EDM) proposed by

the IIT Bombay research team can solve these issues and help boost the local MSME sector.

Uniqueness of the Solution: The machines presently available in the market require a three-phase power supply, plus they occupy a large size besides being very costly. The machine developed at IIT Bombay is plug and play type, which is smaller in size and is also affordable. It requires only a single-phase power supply for its operation.

Current Status of Technology: Component Laboratory Validated. Wire EDM is a highly complex system consisting of multiple components/subsystems. All the subsystems are assembled, and the machine is tested in the lab for cutting silicon and aluminium workpieces.

Societal Impact: The wire EDM will boost local manufacturing as it is small in size and affordable. Further, it can be

purchased easily by technical educational institutes like ITI, small engineering colleges, technical training institutes and various R&D setups.

Patent(s): Filed

Relevant Industries: Manufacturing, Biomedical, Plastic mould making.

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