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Development of economic DLP and resin based 3D printing system for micro fabrication of fine resolution

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3D printing has revolutionized the world of manufacturing, education, food, jewelry and will no doubt be our next in house robot, making luxury a convenience for us. My deep rooted interests for 3D printing in biomedical sciences and its upgrades in the medical field inspired me to design an economic DLP cum resin 3D printer for fine resolution and precise micro fabrication. This printer finds great application in the medical industry and jewelry business.

The system is based on projection of micro stereo-lithography which involves additive layer by layer manufacturing of the 3D polymer on application of LED light from the projector. Existing DLP and resin printers cost manifolds and are not accessible to the common man. A printer that can solve problems of the mankind and is affordable at the same time is the subject matter of this technology. A compact and portable 3D printing system composed of a simple desktop and a 700 lumen light projector can be used to make microstructures and soft materials of the order of 50-300 microns. The study involves the development of the experimental setup, optical and material characterization of the system and product specimen testing on the shape memory polymer.

Biography

Shweta Thapa completed her MEng in Mechanical and Aerospace Engineering at Rutgers University, USA. Her special interest in 3D printing grew during her project work in college as well as interning for 3D printing companies. She is the Founder of 3Ducators a non-profit organization for empowering communities using 3D printing. She has also worked in great mechanical industries like Atlas Copco and Trumpf Photonics. She is an esteemed member of National Association of Professional Women (NAPW).

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