# ATRIA INSTITUTE OF TECHNOLOGY

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**Department of Electronics & Communication Engineering**


## Title: DIGITAL LIGHT PROCESSING AND FUSED DEPOSITION MODELING 3D PRINTER


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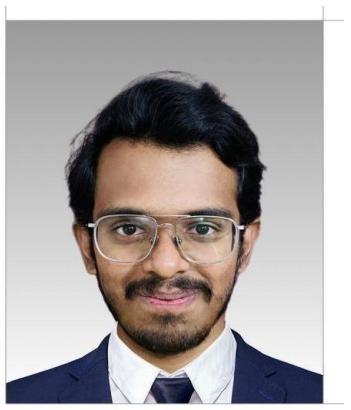

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**ABSTRACT:**

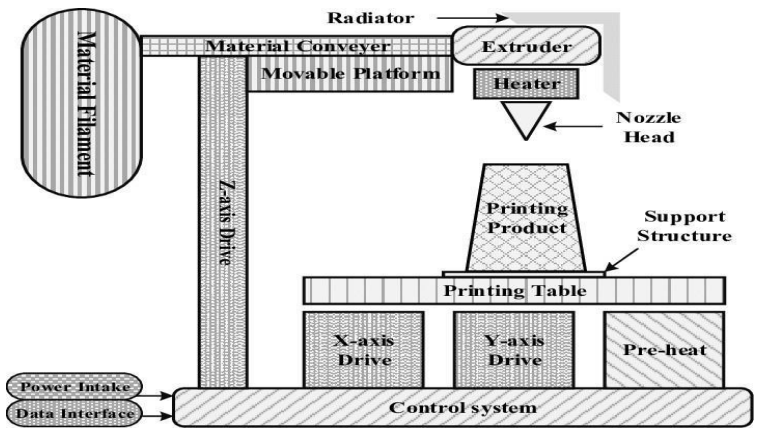
Digital Light Processing (DLP) and Fused Deposition Modeling (FDM) are two popular technologies used in 3D printing. DLP works by using a light source to harden a liquid resin layer by layer to create a solid object. FDM, on the other hand, works by melting and extruding a thermoplastic filament layer by layer to create a solid object.

DLP printers are known for their high resolution and precision, making them ideal for creating detailed and intricate designs. However, they can be more expensive than FDM printers and may require more maintenance. Additionally, the materials used in DLP printing can be more expensive and may not be as widely available as FDM materials.

FDM printers, on the other hand, are known for their affordability and versatility. They can use a wide range of materials, including PLA, ABS, and PETG, and are often used for rapid prototyping and small-scale manufacturing. However, FDM printers may not have the same level of detail and precision as DLP printers, and the surface finish of FDM prints may not be as smooth as those produced by DLP.

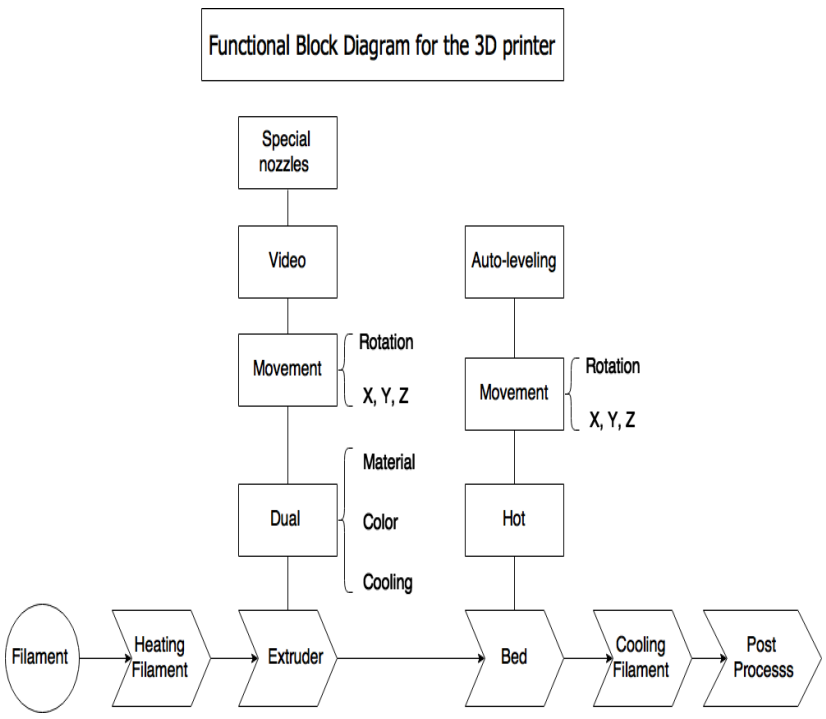
Overall, both DLP and FDM technologies have their strengths and weaknesses, and the choice between the two will depend on the specific needs of the user.


**METHODOLOGY & BLOCK DIAGRAM:**

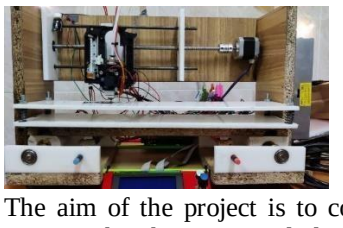


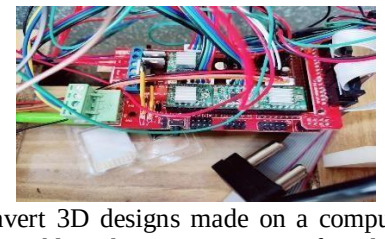

Designing: This step involves creating a 3D model using 3D modeling software. The designcan also be obtained from a pre-existing design library. Slicing: The 3D model is sliced intolayers using specialized software. Each layer is then sent to the 3D printer as a set of instructions. Preparing the printer: The printer is prepared by selecting the appropriate material and loading it into the printer. The printing bed is leveled, and the printer is calibrated to ensure accurate printing. Printing: The printer then begins printing the object layer by layer based on the instructions sent from the slicing software. The printer may use one of several technologies, such as FDM or DLP, to create the object. Post-processing: Oncethe printing is complete, the object may require post-processing, such as removing support structures, sanding, or painting. Quality control: The printed object is inspected for accuracy, strength, and durability. Any issues are noted and addressed in the design or printing processfor future prints.

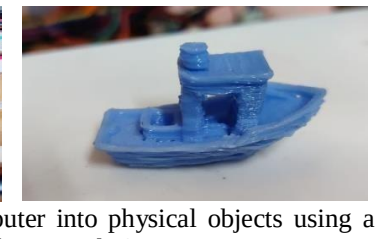
**FLOW CHART:**




**RESULT AND DISCUSSION: (With Images/Graphs)**







The aim of the project is to convert 3D designs made on a computer into physical objects using a 3D printer. The objectives include assembling the necessary parts for a homemade 3D printer, constructing the printer's axisand bed, making the extruder and hot end, and connecting the wiring diagram. The project also involves selectingand inserting PLA filament and installing software for the DIY 3D printer. By following these steps, the projectaims to create a functioning 3D printer that can produce objects using a liquid plastic or other materials. Upon completion, the project allows for the creation of customized and personalized objects at a low cost compared to purchasing pre-made items. Overall, the project provides a DIY solution for individuals looking to experiment with 3D printing and explore the possibilities of additive manufacturing.

**CONCLUSION & FUTURE SCOPE:**

DLP and FDM are popular 3D printing technologies used to create physical objects from digital designs. DLP uses a light projector to cure liquid resin layer by layer, while FDM uses a heated nozzle to melt and extrude plastic filaments layer by layer. Both technologies have unique advantages and disadvantages and are expected to evolve and improve in terms of speed, accuracy, resolution, and materials. The use of 3D printing is expected to become more widespread across a variety of industries due to its ability to create custom parts and prototypes quickly and cost-effectively. Overall, the future of DLP and FDM 3D printing is bright, and we can expect to see exciting advancements and innovations in this field.

**OUTCOME ACHIEVED:** The conference paper on our proposed system "Digital light processing and fused deposition modeling 3D printer " has been structured and is in the final publishing stage, yet to be published.