



SNS COLLEGE OF TECHNOLOGY

Coimbatore-35
An Autonomous Institution



Accredited by NBA – AICTE and Accredited by NAAC – UGC with 'A+' Grade
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DEPARTMENT OF AUTOMOBILE ENGINEERING

19AUT303 – Additive Manufacturing and its applications

III YEAR / V SEM

UNIT – 2 LIQUID AND SOLID BASED ADDITIVE

MANUFACTURING



Stereo Lithography apparatus (SLA)

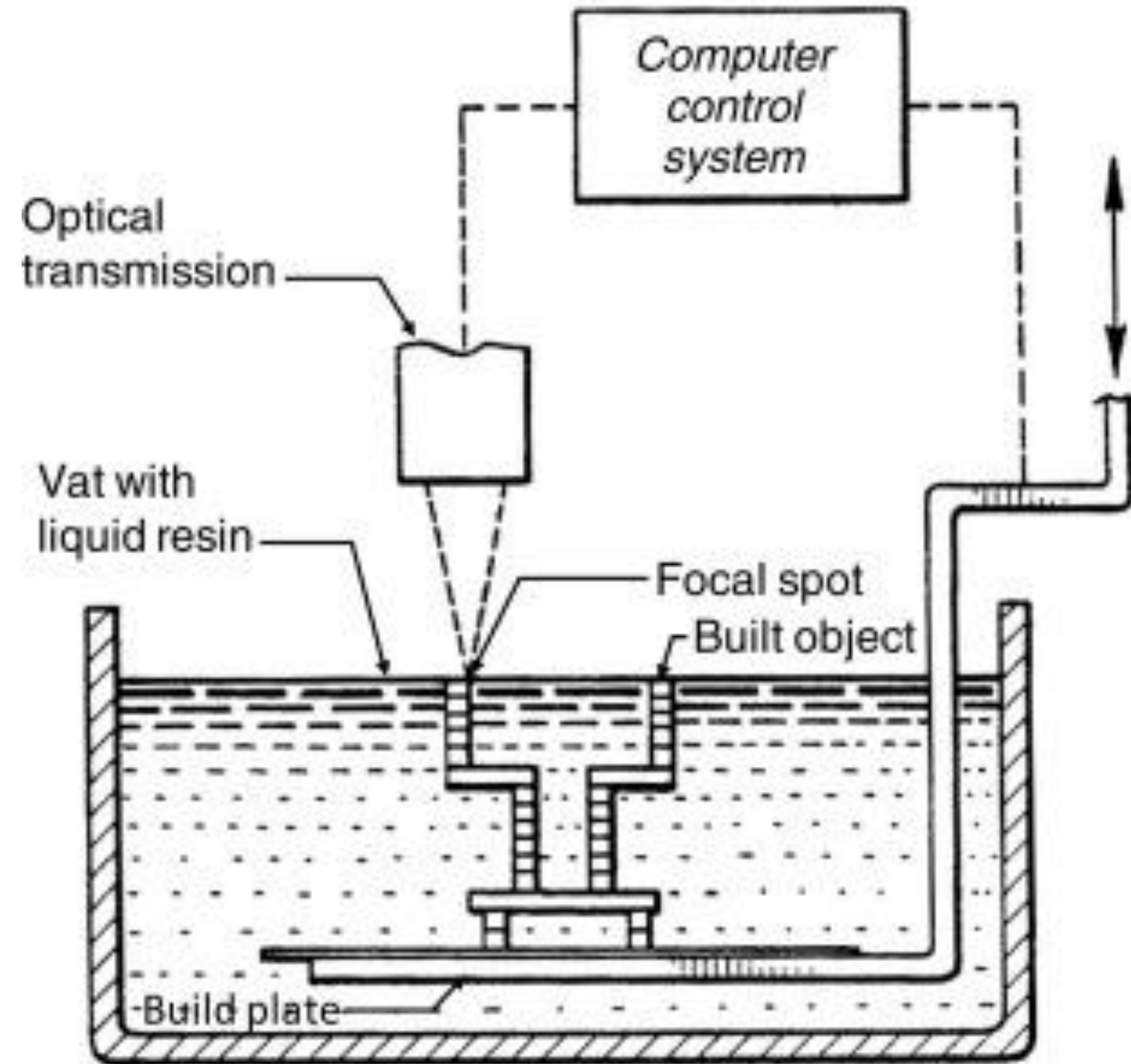


Definition

Stereo Lithography Apparatus (SLA) is an additive manufacturing process and an example of a 3D printing method. This technology **uses an ultraviolet (UV) laser to turn light-sensitive resin (a liquid material that becomes hard when ultraviolet light is shined on it) into solid 3D objects, layer by layer.**

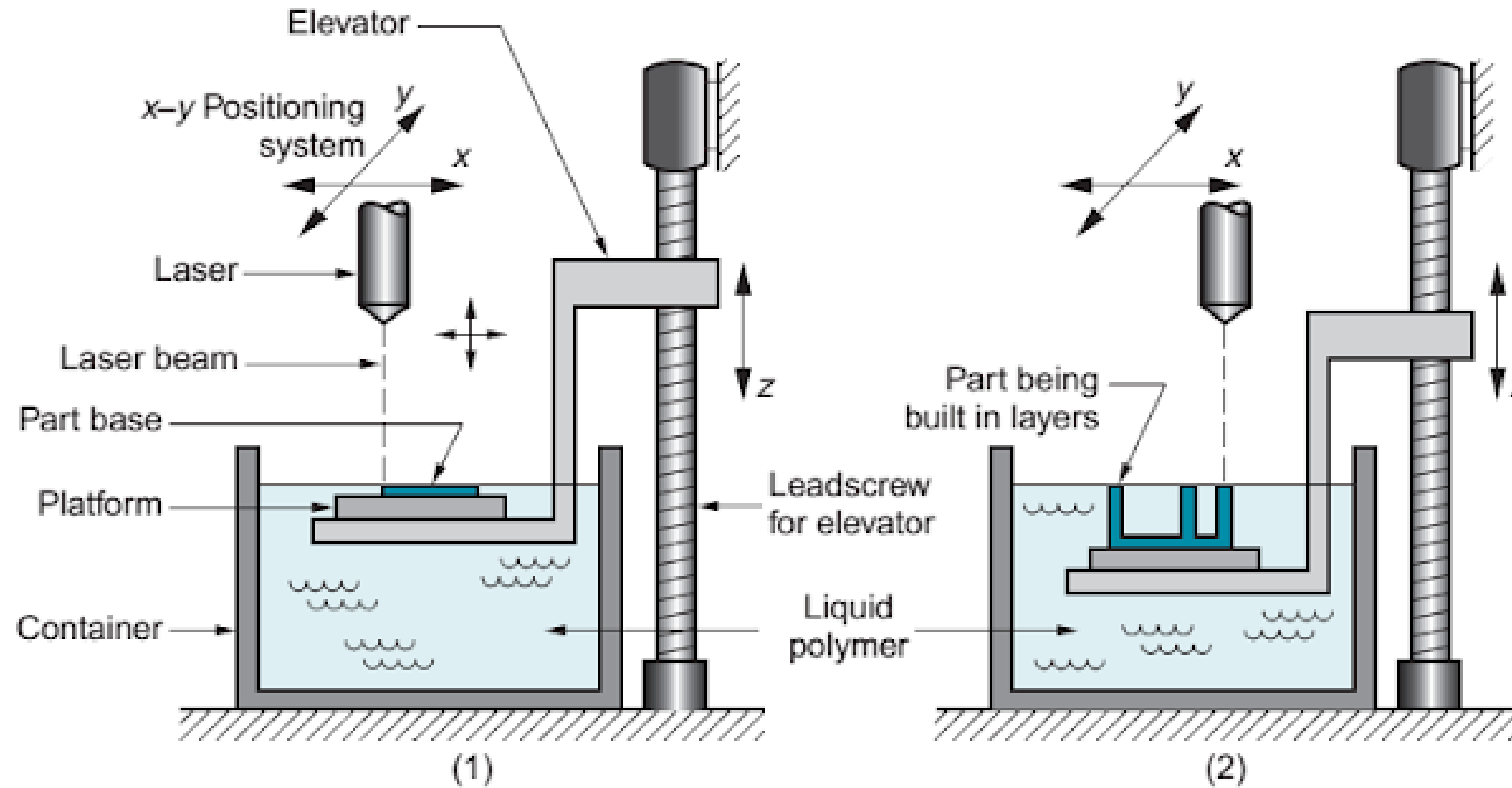


Working





Working (Contd.,)





Working (Contd.,)



- Stereo Lithography process is one of the Rapid Prototyping processes in which **liquid polymer** is used as material for layer by layer 3-D part building with the help of **Laser for solidification of liquid resin**
- In the Stereolithography process, As per the action of the laser beam, a layer of liquid resin gets solidified on the platform. This solidification of the liquid layer is used to build the part.



Working (Contd.,)



Stereo-Lithography Machine consists of the following components:-

- Laser source
- Container
- Platform



Working (Contd.,)



LASER SOURCE

Laser source is used to supply a laser to solidify liquid resin to build the part in layers.

CONTAINER

Container is filled with the liquid resin, When the laser falls on the liquid resin, the liquid resin gets solidified.



Working (Contd.,)



PLATFORM

Platform helps in the part building. Platform can move in an upward and downward direction. Therefore during part building, the Platform moves downwards so new layers of liquid resin get solidified on the old solidified layer.



Pros and Cons



Advantages:-

- Less material waste
- Part with high precision as well as smooth finish can be produced.

Disadvantages:-

- **The process requires more time.**
- **High initial investment.**



Thank You