MODEL SLICING

- Slicing is **used to reduce the size of programs by removing those statements that do not contribute to the values of specified variables at a given program location**.

PRINCIPLE OF MODEL SLICING :

- The act of **converting a 3D model into a set of instructions for the 3D printers** is called Slicing.
- Quite literally, it 'slices' the 3D model into thin layers, and further determine how each layer should be printed (the tool path) to get minimum time, best strength.

- Slicing is **an essential step in 3D printing that's characterized by the use of software to convert an object model into instructions for a 3D printer**.

- The software essentially slices the object model into multiple layers.

- Each of these layers are then given values that denote the way in which it should be built.

TOOL PATH GENERATION

- Toolpaths for additive manufacturing are **usually generated from three-dimensional models in the STL format**. A series of slicing perpendicular to the orientation direction (usually the z direction) is performed. A sliced layer contains at least one polygon describing cross-sections of the objects to be printed.

PURPOSE OF TOOL PATH GENERATION IN 3D PRINTING :

- Toolpath optimization for filament fused deposition. For fused filament fabrication, the design of the toolpath takes a crucial role as **the toolpath of filament alignment has a significant influence on the behavior of 3D printed models, in both surface quality [24], [25] and mechanical strength** [26], [27], [28].

TOOL PATH GENERATION

TECHNIQUES USED IN TOOL PATH GENERATION :

- The key technology of tool path generation included the ,
  - ➢ **Step length selection.**
  - ➢ **Step distance selection.**
  - ➢ **Interference avoidance**.

The process of machining a golf-ball-like spherical surface was divided into turning and milling.

SOFTWARE FOR AM

SOFTWARE USED IN AM :

- **Siemens Digital Industries Software** provides all the necessary capabilities for additive manufacturing, from design to print to post-print validation.

SOFTWARE FOR AM

SOFTWARE CURRENTLY USED FOR AM :

- Bluestreak.
- Infor CloudSuite Industrial (SyteLine).
- MaterialCenter. MaterialCenter is a materials lifecycle management software that helps link the material specialists to mechanical simulation.
- E2 Shop System.
- Materialise Streamics.
- SYSPRO.
- SAP Digital Manufacturing.
- FactoryLogix.

thank you