

Abstract

Rapid prototyping technology (RP) is a technology to construct prototype layer by layer directly from a computer file (CAD model). Each layer is created one by one until all layers are created, which the model is completed. To minimize volume of material and cost, a part orientation is an issue for RP planning process.

This research has been analysis of part orientation and direction of rapid prototype construction for Fused Deposition Manufacturing (FDM)

A method of part orientation analysis has been established by using a bounding box concept. A bounding box has been applied to identify support structures. The part orientation, that presents a minimum volume of support structure, has been assigned as a direction of rapid prototype construction for FDM. Unfortunately, if there is more than one direction that obtains minimum volume of support structure, the construction direction has been assigned on the direction that contains both minimum volume and number of support structure.