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# Application of Rapid Prototyping to Create Additive Prototype Using Computer System

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**Abstract :** Rapid prototyping is a new group of manufacturing processes, which allows fabrication of physical of any complexity using a layer by layer deposition technique directly from a computer system. The rapid prototyping process greatly reduces the time and cost necessary to bring a new product to market. The prototypes made by these systems are used in a range of industrial application including design evaluation, verification, testing, and as patterns for casting processes. These processes employ a variety of materials and mechanisms to build up the layers to build the part. The present work was to build a FDM prototyping machine that could control the X-Y motion and material deposition, to generate two-dimensional and three-dimensional complex shapes. This study focused on the deposition of wax material. This work was to find out the properties of the wax materials used in this work in order to enable better control of the FDM process. This study will look at the integration of a computer controlled electro-mechanical system with the traditional FDM additive prototyping process. The characteristics of the wax were also analysed in order to optimize the model production process. These included wax phase change temperature, wax viscosity and wax droplet shape during processing.

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