

The Impact of Utilizing 3D Printing Techniques on the Production of Plastic Packages

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ABSTRACT

3D printing has revolutionized the industrial technology by manufacturing a three-dimensional, tangible and concrete product by designing it on a computer and printing it (manufacturing it) with 3D printers. The uses of three-dimensional printing in many areas, including space, medicine, entertainment, education, manufacturing and packaging, and the uses of three-dimensional printing in the Egyptian packaging market are limited to the production of prototypes (models that are made to test a specific design and try it to do a certain job before the large amount of it is required). Relying on 3D printing in the production of prototypes and packaging packages is intended to take advantage of the many advantages that 3D printing provides, including lower initial cost, and thus has provided a solution to the problem of lack of available resources with small investors, a feature that encourages many to invest, which in turn increases From the production wheel and reducing the time needed for the manufacturing process, which helps to increase the speed of the production cycle and freedom to design and produce packages with a complex structural structure in addition to getting rid of problems and restrictions imposed by traditional methods such as injection molding Represented in the difficulty of producing complex prototypes, wasting time, high cost of labor, and molding tools .The use of 3D printing in the field of manufacturing packaging locally is limited to the production of prototypes. In order to make the most of this technology in the field of packaging locally, it is necessary to study the economic and technical aspects of the various technologies for 3D printing, as well as the materials used and the extent of the compatibility of these technologies with the specifications of the required product and the needs of the consumer and the Egyptian market. With the greatly reduced costs of 3D printing, the range of its applications is expected to expand to suit the technological development of 3D printing and its innovative solutions in the field of packaging design

Key words:

3d printing – prototype – fused deposition molding