

Design and Development of 3D House Printer

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Abstract

House printer innovation is the one of the most important technologies that would bring to humanity a countless number of benefits represented in obtaining a dignified affordable house with the least of cost and within no time. The traditional methods used to build a house are inefficient, the project carries high significant to our country Oman where the construction industry suffers from many problems whether it is the poor productivity levels or the shortage in skilled labors in addition to other major concerns. The project aims to demonstrate the idea of house printing by developing a prototype that can be used to print concrete layer by layer to form basic structure similar to a small-scale house. The group has come with a detailed design of the prototype that will be implemented and used to demonstrate the technology. 3D Printing Technology (FDM) 3D Printing using a solid material can be done in various ways. A frequently used method is Fused deposition modelling (FDM). The respective material is heated to just above its melting point by a heating element (liquefier) contained in an extrusion head and is deposited in semiliquid form, layer by layer onto a build platform. A support material can also be used which has a separate nozzle to print a removable material in order to support overhangs and particularly thin sections of the model. This support material is removed after completion, leaving the intended 3D model behind (Cooper, 2001).

Biography

Idris Al Ismaili complete Bachelor's Degree in Mechatronics Engineering. He graduates from Sultan Qaboos University in Oman at the age of 23 years. He gets award in best design VEX robotics competition and in 1st place BOT challenge. He was active member of MTES (Mechatronics Engineering Society) for three years. He was doing more project in University such as hydraulic manufacturing process controlled by PLC, X-Y plotter (2D printer) and an intelligent baby cradle system, in the teaching of robot techniques within the activities of the summer program for school students at Sultan Qaboos, in the course 100 Omani innovator at the Technical College in IBRA from 21/JULY to 1/AUG 2019, in the teaching of robot techniques within the activities of the summer program for school students.



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