

Article Abstract

Title:	Development of optimum preplanning for maxillofacial surgery using selective laser sintering
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Abstract:	Rapid prototyping is a technology that can automatically construct physical models from CAD data. It helps designers to quickly create tangible prototype of their design. This technology has numerous applications; they make excellent visual aids for communicating ideas to the customers. It plays an important role in producing complex and intricate models in both engineering and medical applications. This paper presents its application in medical field. It discusses the development of optimum preplanning for maxillofacial surgery using selective laser sintering process. It involves identifying the optimum value of various parameters like threshold value, gantry tilt angle, resolution, layer thickness and interval thickness of CT scan image. The 3D model of the CT scan image is developed and converted into .stl file. The 3D model is produced on Selective Laser Sintering machine by considering shrinkage and compensation allowances. Two case studies are presented and comparison is made with regard to time taken for surgery using RP model and without using RP model. This helps in reducing time and increase precision, as well as to decrease morbidity for maxillofacial surgery, thus resulting in less suffering to patient , thereby reducing costs and length of hospitalization and improving quality of life.
Keywords:	Rapid prototyping, selective laser sintering, maxillofacial surgery, CT scanning, preplanning surgery.