3차원 자동 측정 시스템

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3D Automation Measurement System

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Key Words: Automation(자동), Measurement(측정), Scanner(스캐너), Simulator(시뮬레이터), Alignment(정렬), Inspection(검사)

Abstract : Recently, optical 3D scanners are frequently used for inspection of Parts, assembly and manufacturing tool. The paper presents a 3D Automatic measurement system using a robot and 3D scanner. Owing to recent advances in high-resolution image sensing technology, high power illumination technology, and high speed microprocessors, the accuracy and resolution of optical 3D scanners are being improved rapidly. In order to measure the entire geometry of objects, multiple scans have to be performed in various setups by moving either the objects or the scanner. This paper introduces novel methods to measure the entire geometry of objects by automatically changing the setups and then aligning the scanned data. To accomplish this task, graphical method is an effective solution by controlling its configuration. We conducted experiments to confirm of our method.

듀얼레이저를 이용한 산업용 임의형상 제작 시스템의 소결 공정개발 및 성능평가

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Development of Sintering Process and Performance Evaluation of Industrial SFF System using Dual Laser

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Key Words: Selective Laser Sintering (선택적 레이저 소결), Solid Freeform Fabrication (임의형상제작)

Abstract : Selective Laser Sintering (SLS) is currently recognized as a leading process in the new field of solid freeform fabrication (SFF). In order to develop more elaborate and speedy system for fabricating large objects compared to existing SLS, this study employs a new Selective Dual-Laser Sintering (SDLS) process. It contains 3-axis dynamic focusing scanner system for scanning large area instead of the existing fΘ lens used in commercial SLS. The optimal fabrication parameters such as sintering temperature, laser beam power and layer thickness should be determined when sintering polymer. Also, experiments have been performed to evaluate the effect of fabrication parameters on process and to fabricate the various 3D objects using polymer.