An Internet-Based Remote Control and Monitoring Rapid Prototyping System

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Abstract

The emergence of the Internet has fundamentally changed the way that people communicate and view the world. RP using Internet can enhance design and manufacturing productivity by taking advantage of the Internet.

We combine the RP machine, the pre-processes of RP system, and the Internet into a tele-control manufacturing system. Users can send the 3D CAD model (STL file) into the tele-control server via Internet and the server will transfer the CAD model into the photomask display of RP machine. Users can also control the RP machine to build RP part and see the live image of the RP part via WWW.

This paper also presents software and hardware technologies of building LCD display based Rapid Prototyping system. In consideration of the quality of RP part during the manufacturing process, we develop an online vision inspecting system. By using the “Pattern Matching” algorithm, the grabbed image will be compared with the model image of LCD photomask. If the grabbed image is not similar to the model image, the defect or collapse may be occurred on the RP part, the program will stop the RP manufacturing process to assure the good quality.