Probe Radius Compensation and Surface Measurement System

서석환 (포항공과대학 산업공학과)
이성권 (포항공과대학 산업공학과)
강재관 (포항공과대학 산업공학과)

In the surface measurement system using touch probe, probe compensation is a key factor for accuracy. In this research, we develop an algorithm for probe compensation. The algorithm finds the surface equation (NUBS) iteratively using the actual measurement data and estimated normal vector. Since the new surface points are generated without fitting the offset surface, it is computationally efficient. Future, since the solution accuracy is measured at each iteration, it can produce highly accurate surface.

The developed algorithm is tested via numerous computer simulations and real experiments. To perform real experiment, we interfaced the probe unit to the five-axis gantry robot so that it can be used for surface measurement system. The results convinced us that the developed algorithm together with the hardware system can be used for accurate surface measurement and inspection.