

Development of a Stereo Vision and Multiple Laser Stripes based Robotic Measuring System for 3D large surface Profile Acquisition

Mr. Jingsyan Torng

The aim of this research is to develop a Robotic Measuring System (RMS) which is used for large surface 3D data acquisition. Normally acquiring three-dimensional surface data can be achieved with precision by use of touch probes. However, computer vision and image processing is faster, especially for extracting a large amount of 3D data such as free-form surface features. The RMS integrates an industrial robot, a set of CCD camera, a laser stripe projector, and a personal computer with appropriate software to perform a large surface measuring task. Topics such as robot calibration, camera calibration, and measurement strategies are to be investigated.