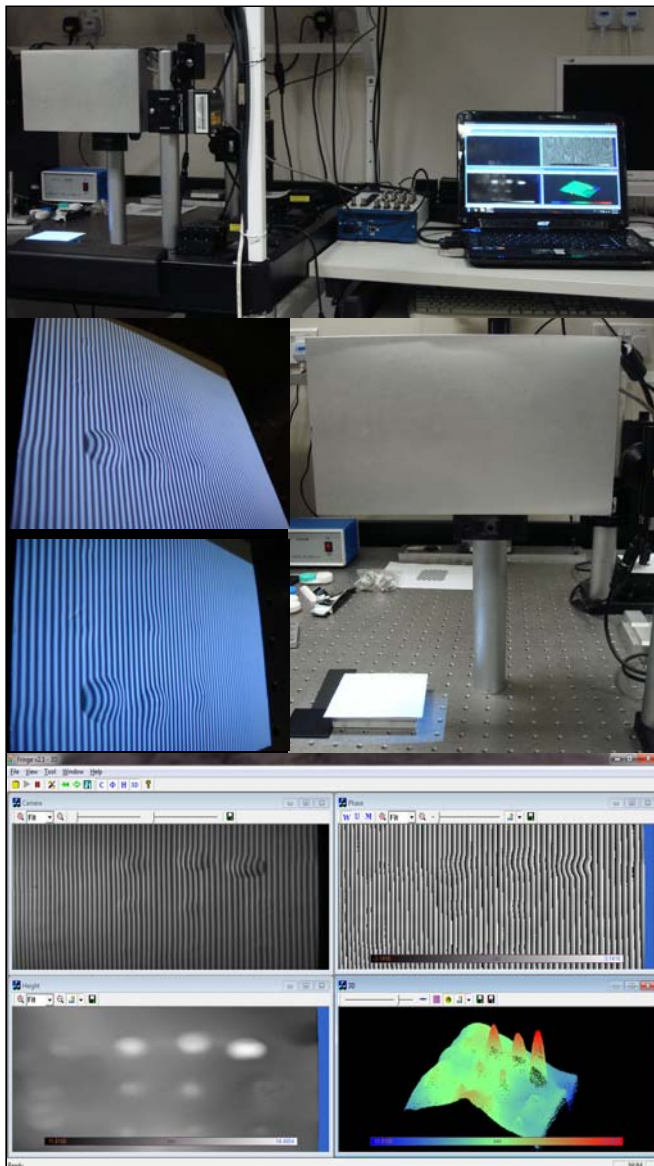


Compact Fringe Projection Profilometer

—a compact digital 3D shape measuring system

1 Introduction

The Compact Fringe Projection Profilometer (CFPP) provides high sensitive three-dimensional (3D) shape profiles using a novel multi-grating phase shift method.



The robust compact system is capable of providing nearly 8 million 3D points cloud with non-contact measurement in near real-time. Both the projected multi-grating pattern and the synchronous image acquisition are controlled by

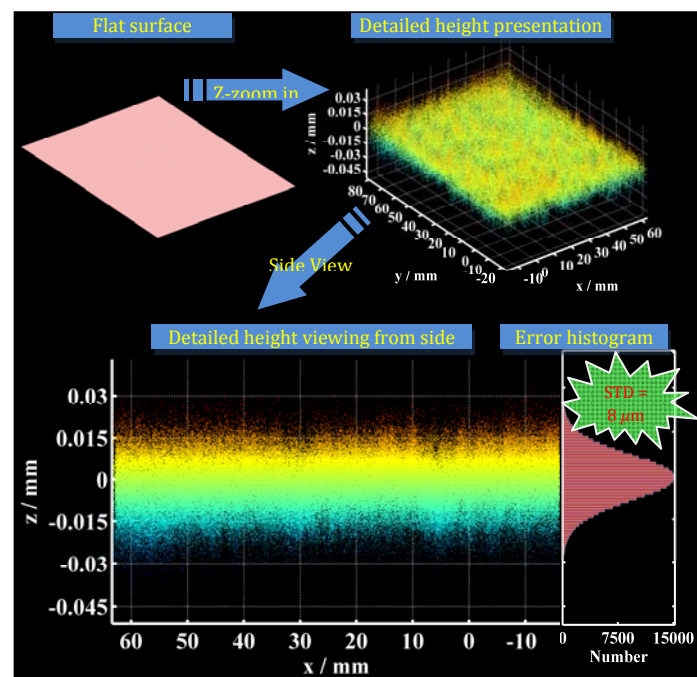
user-friendly software which provides flexibility with no moving parts. The acquired images are processed using a novel algorithm to provide the 3D point cloud in real time. Applications in such diverse fields as aerospace, medical, product inspection and quality control, and reverse-engineering are possible.

2 Specifications

Specification		
Accuracy	Lateral (x or y)	0.05 mm
	Axial (z)	0.01 mm
Precision	Lateral (x or y)	0.05 mm
	Axial (z)	0.01 mm
Measuring Range (recording volume)	Lateral (x or y) (Field of View)	~100 mm
	Axial (z) (Depth of Field)	~80 mm

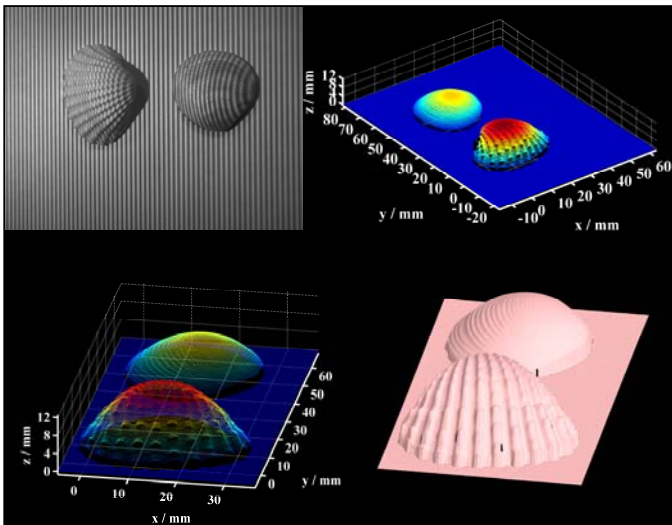
3 Measuring performance study

A flat surface is measured to test the performance of our CFPP system. A result with a standard deviation (STD) less than 10 microns can be achieved. As shown, the measuring STD is around 8 microns.

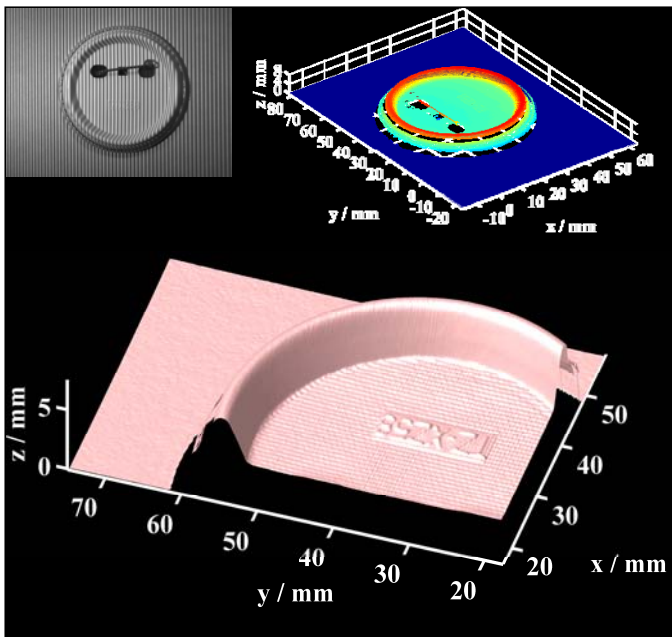


4 Case study

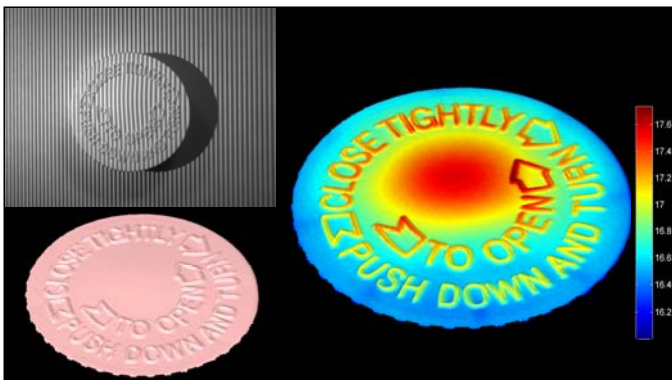
4.1 Sample No.1: Shells



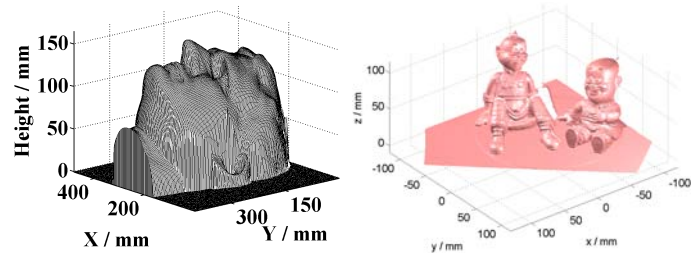
4.2 Sample No.2: Small structures on the backside of a badge



4.3 Sample No.3: Box cover



5 Applications

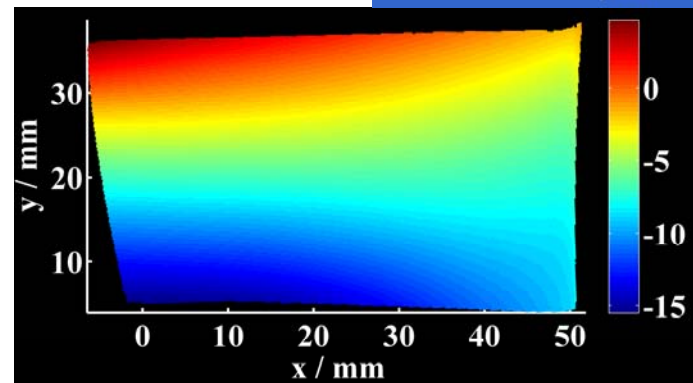
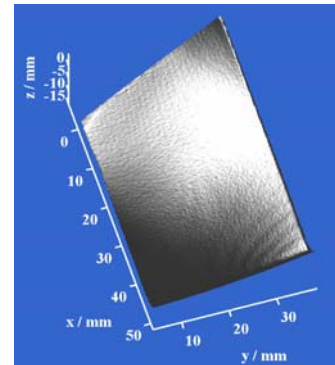


Example 1
Plaster Model

Example 2
Artistic Handicraft



Example 3
Live Human Face



Example 4
Turbine Blades

6 Contact information

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