

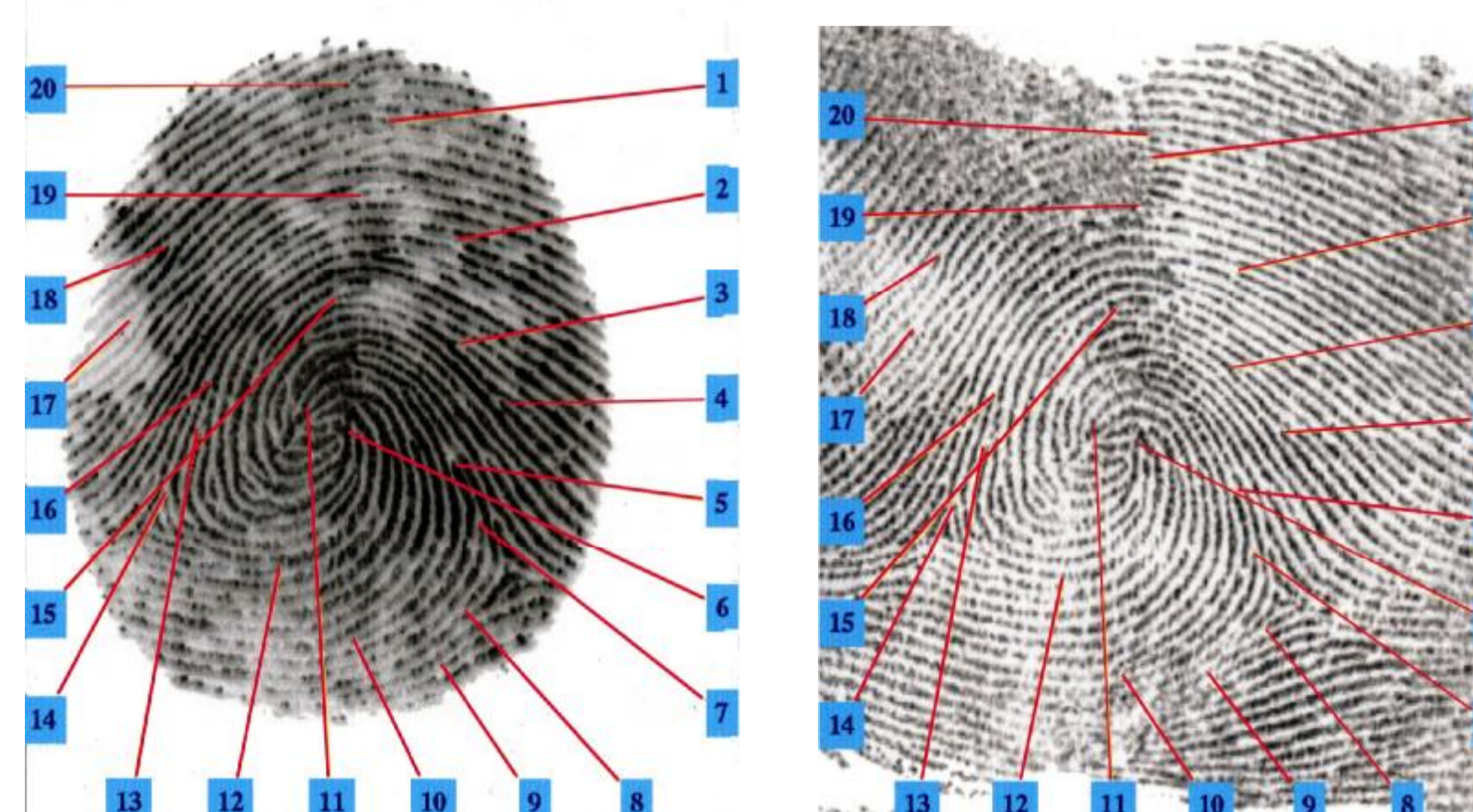
Consistency and Reproducibility in Fingerprint Sampling

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Introduction

Friction ridge skin covers the entire palmar surface of the hands and the plantar surface of the feet. Its major purposes are to provide grip, sensation and aid in body temperature regulation. The friction ridges contain identifiable characteristics known as ridge characteristics, which may adopt an almost infinite number of constitutions, leading to the hypothesis that no two individuals may possess similar enough ridge detail as to avoid differentiation. Consequently, friction ridge detail may be used for human identification purposes. The term 'fingerprint' is used to describe the impression of an area of friction ridge skin, deposited on a surface.



The type, number, position and orientation of the ridge characteristics can be compared between two impressions in order to identify an individual.

Fingerprint image quality is of the utmost importance, since sufficient detail is required to enable a successful fingerprint comparison and subsequent identification of an individual.

Images of inked fingerprints demonstrating a variation in image quality



Excess pressure applied causes ridges to merge, distorting ridge detail



Insufficient pressure applied prevents the transfer of sufficient ridge detail

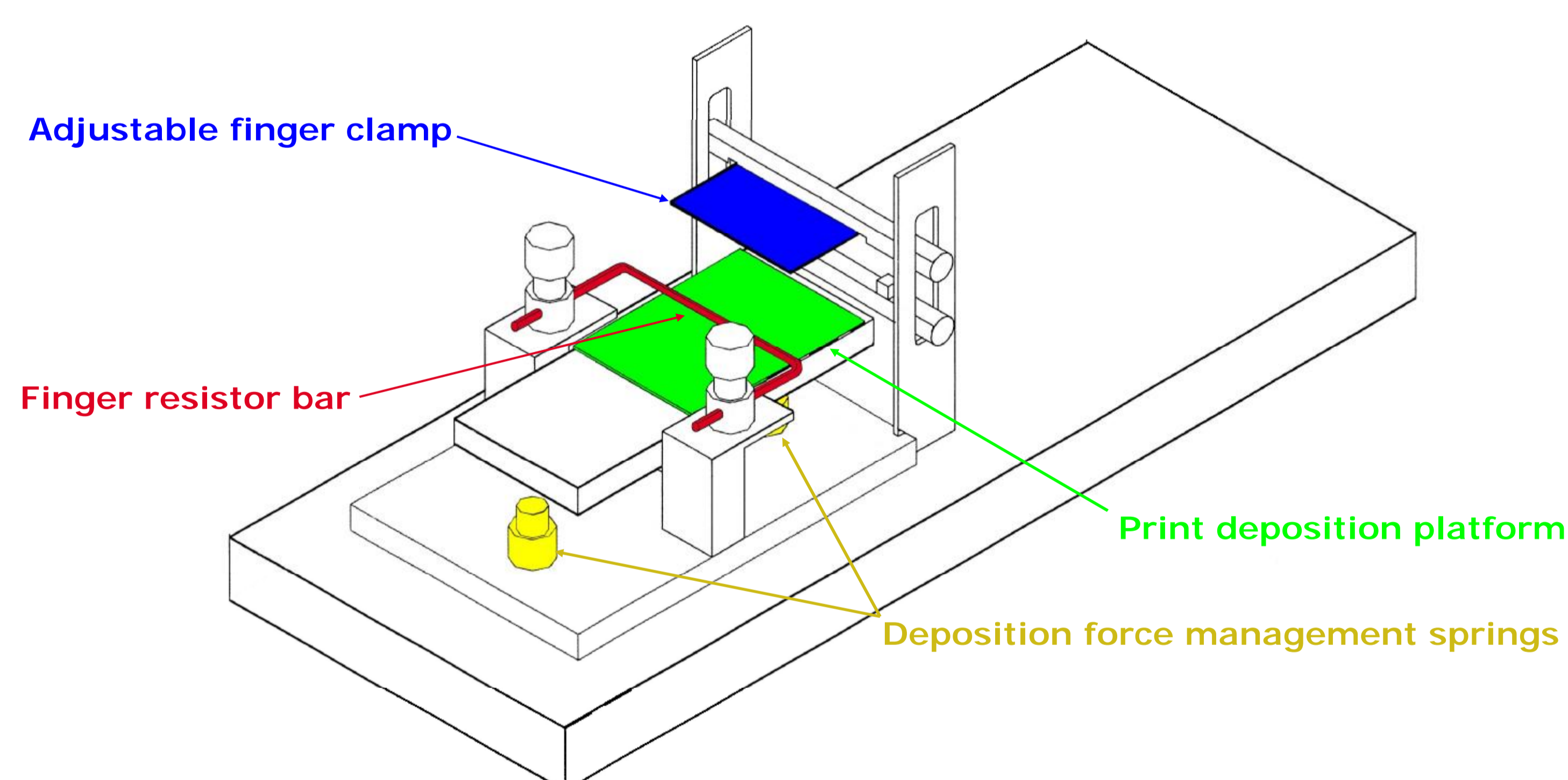


Variations in force applied throughout the print results in partial distortions of ridge detail, and/or an incomplete print



The angle of friction ridge skin application will determine the ridge characteristics available for analysis

The Fingerprint Sampler



The Fingerprint Sampler is designed to record both latent and inked fingerprints in a highly consistent manner. Trials demonstrate the production of high quality fingerprint images, with a consistency in output. Its simplicity makes it suitable for use by inexperienced personnel.

- high degree of operator control
- similar force applied for each deposition
- angle of deposition controlled
- duration of surface contact controlled
- simplicity of design ensures ease of operation

Images of inked fingerprints taken using the Fingerprint Sampler on separate occasions



Observations

- high quality fingerprint images containing usable ridge detail
- consistency in output

Potential Applications

The Fingerprint Sampler can be used to record fingerprints with a high degree of consistency and accuracy of ridge detail. As a result it has the potential to be developed by any agency who are required to record fingerprint detail for identification purposes, including security departments, such as Government.

Acknowledgements

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