Topic [4] **Oral( ) / Poster(O)**

Fake Finger Detection Using Thermal Inertia in Biometrics

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Finger based authentication (e.g. fingerprint, finger vein) is widely used for biometrics. However the method is vulnerable to faked fingers. There are several anti-spoofing techniques, but they are not appropriate from a practical view. To overcome these problems, we developed simple but effective fake finger detection system composed of metal rod and two thermocouples. When the finger was contacted to the rod, the thermocouples sensed temperatures of the metal-finger interface(T_i) and the finger skin respectively(T_s). Thermal inertia ($k\rho c$: k for thermal conductivity, ρ for density and c for specific heat capacity for a material) of the finger was computed based on this measurement and we could determine if the test material was real finger since the thermal inertia varies material to material. Several kinds of material were tested to confirm the effectiveness of the developed system and the performance was feasible.

References

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