Iniziato	martedì, 26 aprile 2022, 12:52
Stato	Completato
Terminato	martedì, 26 aprile 2022, 13:00
Tempo impiegato	7 min. 5 secondi
Punteggio	4,00/17,00
Valutazione	**7,06** su un massimo di 30,00 (**24**%)

Domanda 1

Risposta errata

Punteggio ottenuto 0,00 su 1,00

An anatomical or behavioral trait can be used as a biometric identifier when it has a sufficiently high degree of:

- ○ a. Popularity, universality, uniqueness, measurability
- ● b. Uniqueness, accuracy, collectability, measurability ✖
- ○ c. Universality, uniqueness, measurability, collectability
- ○ d. All answers are correct
- ○ e. Popularity, accuracy, uniqueness, performance

La risposta corretta è: Universality, uniqueness, measurability, collectability

In piezoelectric fingerprint scanners, each pixel in the sensitive area of the solid-state sensor generates:

- a. A voltage signal depending on the pressure variation induced by ridges to the silicon layer of the pixels
- b. A voltage signal depending on the capacitance variation induced by ridges on the pixel surface
- c. A current signal depending on the pressure variation induced by valleys to the silicon layer of the pixels
- d. A current signal depending on the capacitance variation induced by the ridges on the pixel surface
- e. A voltage signal depending on the pressure variation induced by ridges to the quartz layer of the pixels

La risposta corretta è: A voltage signal depending on the pressure variation induced by ridges to the quartz layer of the pixels

The generic structure of biometric systems used for the identification of individuals is composed by the following modules:

- a. Sensor, feature extraction, digitalization, template creation and matching ✖
- b. Capture, template saving, digital-to-analog, matching and decision
- c. Capture, signal processing, storage, matching and decision
- d. Storage, matching, and digitalization
- e. Sensor, one-to-one comparison and matching

La risposta corretta è: Capture, signal processing, storage, matching and decision

Which of these kind of sensors are able to detect skin sub-surface features?

- ◉ a. MEMS Sensor and Thermal sensors ✖
- ○ b. Multispectrum Optical sensors and FTIR sensors
- ○ c. None of the answer is correct
- ○ d. Multispectrum Optical sensors and Ultrasonic sensors
- ○ e. Electrical RF sensors and Ultrasonic sensors

La risposta corretta è: Multispectrum Optical sensors and Ultrasonic sensors

In biometrics, users are authenticated by the verification or identification of individuals through:

- ◉ a. Biological factors ✖
- ○ b. Ownership factors
- ○ c. Inherence factors
- ○ d. Exterior appearance of human skin
- ○ e. None of the answer is correct
- ○ f. Knowledge factors

La risposta corretta è: Inherence factors

Domanda 6

Risposta corretta

Punteggio ottenuto 1,00 su 1,00

The miniaturization of electronic components has been depicted by the Moore's law. The Moore's law states that:

- ○ a. The number of transistors on integrated circuits doubles approximately every two years ✔
- ○ b. None of the answers is correct
- ○ c. The power consumption of integrated circuits decreases of half approximately every ten years
- ○ d. The power consumption of integrated circuits doubles of half approximately every four years
- ○ e. The number of transistors on integrated circuits doubles approximately every ten years
- ○ f. The number of sensors in electronic devices doubles approximately every two years

La risposta corretta è: The number of transistors on integrated circuits doubles approximately every two years

Domanda 7

Risposta non data

Punteggio max.: 1,00

Optical fingerprint sensors generally include:

- ○ a. Pyroelectric pixels
- ○ b. Lenses, which are sensitive to FTIR phenomena
- ○ c. OLED sensor
- ○ d. Only a LED and multiple CCD/CMOS cameras
- ○ e. Light source, optical system, and image sensor

La risposta corretta è: Light source, optical system, and image sensor

Domanda 8

Risposta corretta

Punteggio ottenuto 1,00 su 1,00

Multispectral Sensor Image (MSI) acquires multiple images:

- ○ a. At different polarization status
- ○ b. At the same wavelengths of illumination light
- ◉ c. All the answers are correct ✔
- ○ d. At the same average temperature of the finger

La risposta corretta è: All the answers are correct

Domanda 9

Risposta corretta

Punteggio ottenuto 1,00 su 1,00

✔

In optical fingerprint sensors, what is the component which converts the energy of the light that hits the detector into electric charge?

- ○ a. TIR LEDs
- ○ b. The Fiber optic Plate (FOP)
- ○ c. The imaging polarizer
- ◉ d. Photodiodes or Phototransistors ✔
- ○ e. The sheet prism

La risposta corretta è: Photodiodes or Phototransistors

Domanda 10

Risposta errata

Punteggio ottenuto 0,00 su 1,00

Which of these is classified as an optical sensor?

- a. Multispectral
- b. Capacitive ●
- c. Ultrasonic
- d. All answers are correct
- e. Thermal
- f. MEMS

✖

La risposta corretta è: Multispectral

Domanda 11

Risposta errata

Punteggio ottenuto 0,00 su 1,00

Unimodal biometric systems based on eye recognition are related to features of:

- a. Cornea, or iris, or retina
- b. Optical nerve, and scleral vein, and retina ●
- c. Iris, or retina, or scleral vein
- d. Retina, and iris
- e. Iris, or pupil, or retina
- f. None of the answers are correct

✖

La risposta corretta è: Iris, or retina, or scleral vein

Risposta corretta

Punteggio ottenuto 1,00 su 1,00

The term «Biometrics» has its origin from Greek and is composed by:

- ○ a. «bios» and «metron», which literally means «measurement of life» ✔
- ○ b. «bio» and «metrus», which literally means «measurement of biologic traits»
- ○ c. «bios» and «metron», which literally means «measurement of biologic elements»
- ○ d. None of the above answers are correct
- ○ e. «bio» and «metric», which literally means «biological metrics»

La risposta corretta è: «bios» and «metron», which literally means «measurement of life»

Risposta errata

Punteggio ottenuto 0,00 su 1,00

In the final image produced by Frustrated Total Internal Reflection (FTIR) Sensors:

- ○ a. Ridges appear in dark and the valleys appear bright
- ○ b. Ridges appear bright and the valleys dark ✖
- ○ c. None of the answer is correct

La risposta corretta è: Ridges appear in dark and the valleys appear bright

Which of the following statements regarding the biometric passport (e-passport) is false?

- ◉ a. At airport immigration, the automatic facial recognition based on the e-passport is considered a verification system ✖
- ○ b. The e-passport contains an embedded electronic microprocessor, which is the data storage for the biometric template of the passport owner
- ○ c. An antenna is integrated in the front or back cover of the e-passport for powering the chip and for establishing the communication when approaching the e-passport reader
- ○ d. The e-passport contains an embedded electronic microprocessor to save only the demographic information of the passport owner

La risposta corretta è: The e-passport contains an embedded electronic microprocessor to save only the demographic information of the passport owner

MEMS sensors are based on:

- ○ a. Array of micro capacitor plates with constant capacitance
- ○ b. Temperature differential measurements
- ○ c. Sensing capacitance variations induced by a mechanical pressure
- ○ d. Radio frequency sinusoidal signals

La risposta corretta è: Sensing capacitance variations induced by a mechanical pressure

In a capacitive fingerprint scanner, the capacitance related to the external protective layer of a single pixel is:

- a. Depends on the local distance between the chip surface and the finger skin
- b. Proportional to the relative humidity of the environment
- c. None of the answers is correct
- d. Higher at ridges than at valleys
- e. Proportional to the thickness of the protective layer
- f. Proportional to the relative permittivity (dielectric constant) of the material used for the surface protective layer

La risposta corretta è: Proportional to the relative permittivity (dielectric constant) of the material used for the surface protective layer

Which of the following fingerprint's feature needs high resolution fingerprint sensor in order to be extracted?

- a. Bifurcation
- b. Island
- c. Delta
- d. Pores

La risposta corretta è: Pores