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Aviation Senior Seminar: Dr. Eric Savage

Abstract

- This poster explored the state-of-the-science applications of biometrics in aviation security environments: DNA, retinal scans, facial recognition and finger printing which are all currently being researched to identify a passenger.
- The poster reflects survey analysis from passenger perceptions of the biometric used for passport identification and perceived effect on airport efficiency.
- The anecdotal concerns are identified along with suggested conclusions regarding the current state-of-the-science applications of biometrics in aviation security environments.

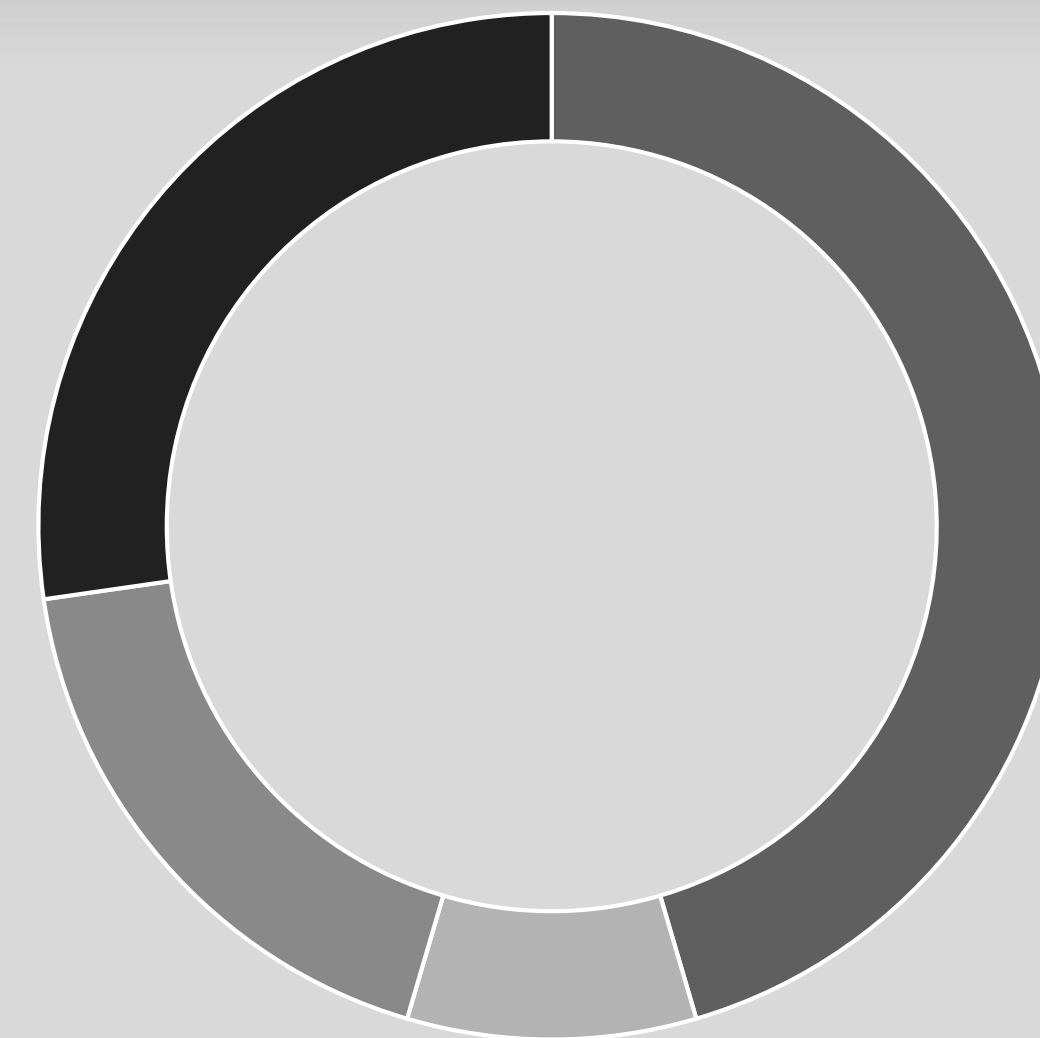
Applications

- Biometrics were compared to a passenger's passport to confirm their identity.
- Microchips embedded inside passports (EU) can store biometric information and history.
- Passports can also be scanned and compared to a facial symmetry photo that is taken prior to boarding.
- This process had the ability to decrease boarding times and improve the accuracy and dependency of airport security.

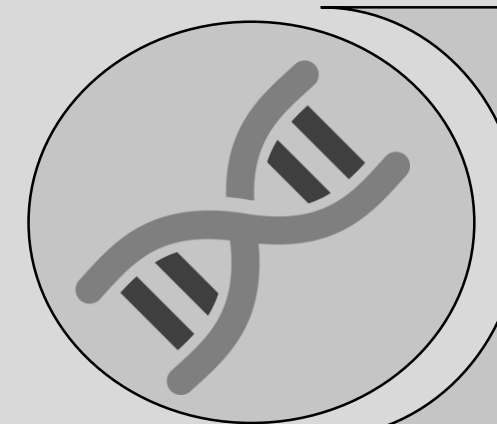
Implementations

- A trial of biometric boarding was started at Los Angeles International Airport.
- Los Angeles Airport reduced the boarding time of 350 passengers from nearly 40 minutes to 20 minutes.
- Commercial airlines began utilizing the technology as well, specifically Delta Airlines and JetBlue Airlines.
- The technology has been implemented in Europe to conserve space in over crowded airports such as Amsterdam Schiphol.

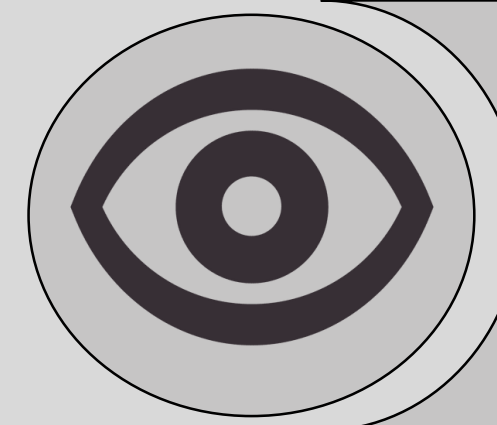
Desired Biometric for Passport Identification



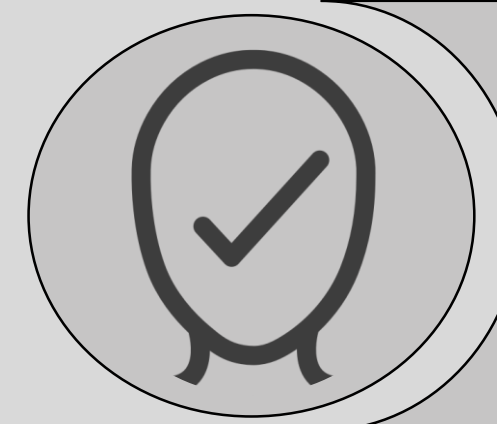
■ Fingerprint ■ Retina Scan ■ DNA ■ Facial Scan



- Establishes familial relationship
- Commonly used in law enforcement
- Highly unique (Impossible to replicate)



- Low false acceptance rate
- Difficult to replicate
- Two second processing time



- Non-invasive collection
- Currently used for passports and National ID documents



- 5-9 second processing time
- Commonly used in border management
- Also used in law enforcement

Anecdotal Concerns

- Fraudulent E-Passports with embedded microchips were used to murder a militant from Dubai. This exposed the overreliance that was put on E-Passports in Europe.
- Obtaining biometrics is perceived as an invasion of privacy to passengers unwilling to utilize the technology.
- Environmental and health conditions may affect the results of biometrics. (Allergies, humidity, pressure differences)
- Case law and legal defenses have been limited

Suggested Conclusions

- The industry must determine if biometric security is a necessary precaution or if it is an overzealous measure.
- The passengers must determine if reduced boarding times and improved security is worth submitting their biometrics.
- Those who benefit from the aviation industry must be willing to adapt and evolve as new technology is used to improve the safety and efficiency of the industry.

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