



SMART AIRPORT
INNOVATIONS
2017



123RF/Olegudko

INNOVATIONS abound in our sector..

Seamless, interconnected, tailor-made, efficient, INTELLIGENT, today's airport is avant-garde making every effort to satisfy the requirements of its passengers, companies and partners.

In this directory, Proavia features the latest French innovations in the field of airport terminals, handling and air traffic control. PROAVIA is the professional association that promotes the know-how and technology of French companies in the field of equipment and services for airports and air traffic control.

A nonprofit professional association, PROAVIA consists of **60 member companies** and carries out its activities of promotion and information under the auspices of the General Directorate of Civil Aviation.

Yes, but which French companies offer the latest technological solutions?



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LANDSIDE

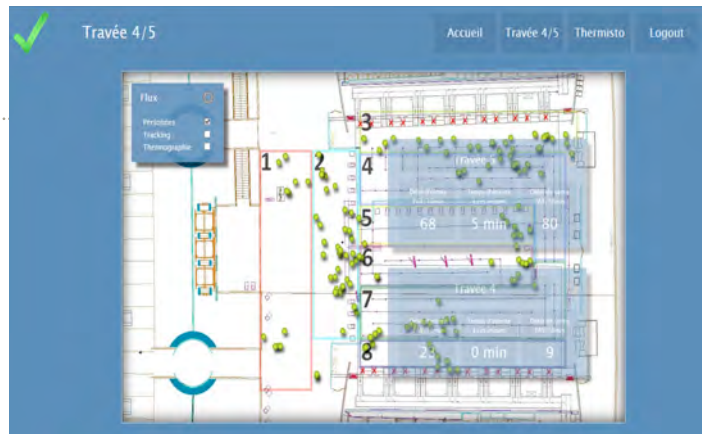
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- Automatic Passenger Counting Systems
- Queue Management Solutions
- LIDAR

COMPANY

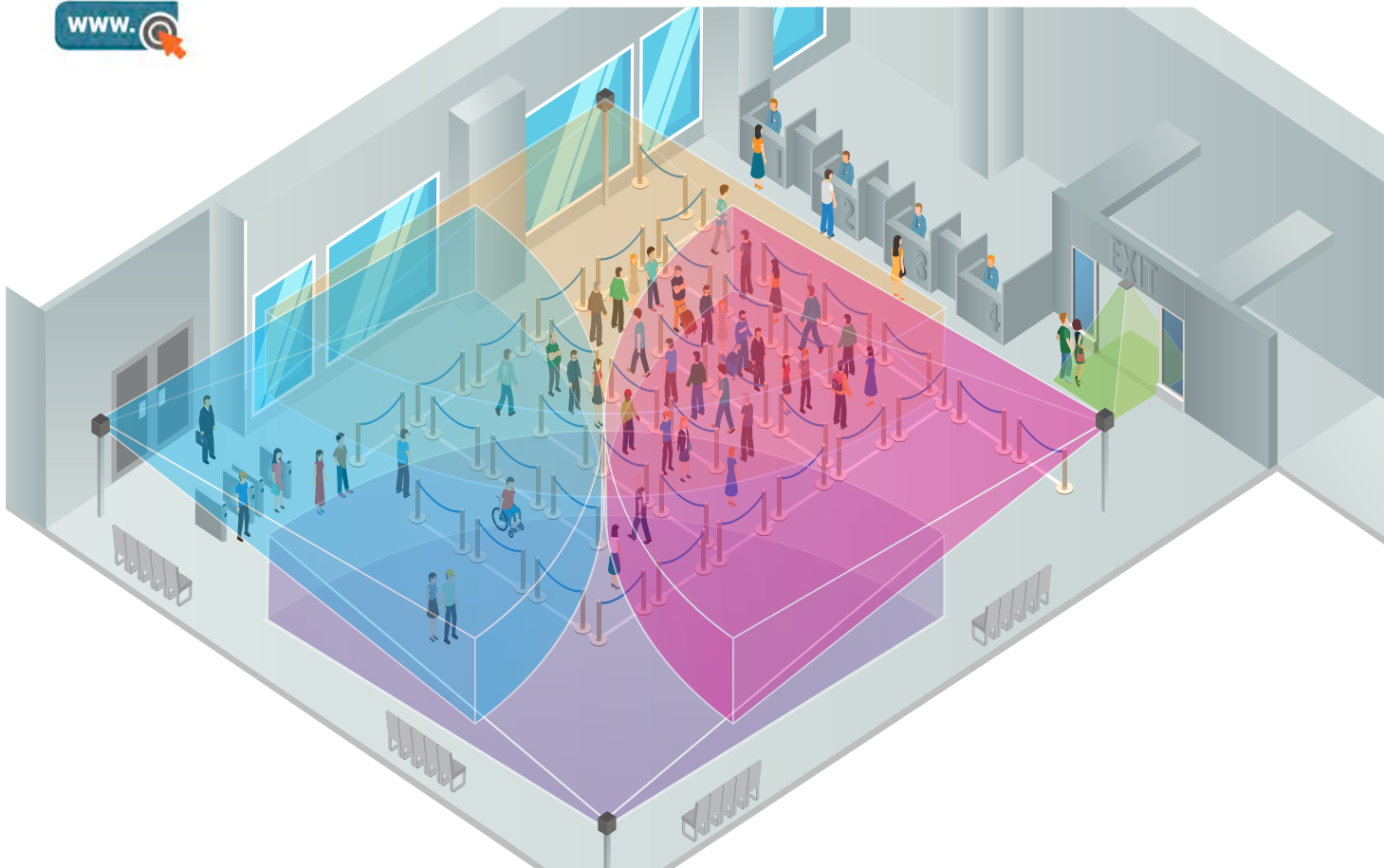
ACOREL is specialized in automatic people counting solution since 1989.

We are present in many sectors, including public transports (buses, trams, trains, metros), shopping centers and retail stores, as well as airports.



LATEST INNOVATION

ACOREL proposes advanced solutions for automatic passenger counting and queue management in airport terminals. Based on high technology sensors based on LIDAR (IR scanning laser) and 3D stereoscopic cameras, our solutions reach over 98% accuracy, resulting in the exact accounts number of people queuing as well as more accurate calculation of waiting times. Our solutions can cover wide areas (30 50 m² per sensor) and adapt to terminal configurations (e.g., low ceilings) not possible with other products in the market.





af83



• Mobility • Hub • Data • Maas • Saas



COMPANY

af83 is a research unit and digital design office based in Paris, in the heart of silicon Sentier (2nd district). Specialized in user experience design and new uses, we conceive digital and ubiquitous solutions (open data, monitoring) and man-machine interfaces, incorporating brand and communication issues. Our references in the airport industry include among other things Paris Aéroport and Air France (Étoile Observateur du Design 2016 award).

LATEST INNOVATION

af83 offers a modular, multi-modal services platform for mobility information. It consolidates the information of disparate mobility services, scaling from a city block level up to a national level. From public transportation to autonomous shuttles, APM's or private hires, we build on legacy transport industry services to accommodate emerging uses and innovative mobility services.

It is innovative by opening up to new types of mobility. Its modular structure allows it to incorporate flows and emerging vectors, people, goods, and information. Lastly, it is an open source platform on which to create new, environmentally-friendly services for airports.

- Automatic Tray Return System (TRS)
- Speeding passenger flow



COMPANY

ALFYMA company is specialized in conveyor and handling systems for different activities (airports, agro-food, recycling, quarries, logistics...).

ALFYMA is present in airport activity with security checkpoint systems (TRS line and all the different checkpoint equipments) and with BHS, Baggage Handling Systems (X-Ray machine integration according to 3 safety standards).



LATEST INNOVATION

Our latest innovation is our automated Security Checkpoints system. We can supply a complete Tray Return System (TRS), including a re-check area for handling faulty trays.

This system permits automated management of self-service trays at various preparation stations along the processing stream, according to airport requirements and to the space available. Passengers are offered several trays at each preparation post, limiting the number of actions of required of passengers and thereby speeding passenger flows.

Many automated lines are already in use or soon to be installed in various airports (Nantes, Toulouse, Lisbonne, Bâle-Mulhouse, Paris Airports...).



- Intelligent lighting • Speed • Modular
- Open systems

COMPANY

Integrator of new technologies enhancing airport automation in the following areas:

PEXAS, UAE, airfield lighting, GTC, baggage handling, passenger flow management, jetway operations.

LATEST INNOVATION

Our latest «**ISAC**» system controls taxiway and runway lighting by fiber optics. The intelligence of the system is distributed throughout the field to guarantee response times of less than the second.

The system is adaptable to existing or new platforms and is compatible with all standard protocols, and extends to new technologies (video, radar, weather network, ILS, VOR DME, IoT, etc.). The ability to integrate with many information sources results in a more powerful lighting capability.





- Baggage dynamic centering and reorientation
- Smooth process flow

COMPANY

French company Alstef is one of the major global suppliers of hold-baggage handling systems in the world and designs innovative and sustainable solutions for airports.

LATEST INNOVATION

BAGXenter, a new concept that solves the problem of the bag centering and re-orientation for high throughputs. In order to avoid any bag jams while feeding continuous elevators, destination coded vehicles, screening machines, and totes systems it may be necessary to check the position and orientation of the bag on the belt and then to center the bag and/or to turn it to introduce it in the machine in a optimal manner.

The great advantage of **BAGXenter** compared to all the other similar technologies existing in the market is that each **BAGXenter** system has a capacity of 1200 bags per hour: indeed, the different steps (analysis, centering, reorientation) are done without slowing the flow of bags (up to 1 m/s) so that the throughput is not disturbed.





- «Transparent» constant current regulators
- Alternating chopper • IGBT transistors
- Connectivity • Interoperability

COMPANY

AUGIER is a French manufacturer of electrical equipment for the transport and control of energy, and for airfield lighting.

With 50 people, 9 M€ of turnover including 4 M€ in export, the range of designed and manufactured products covers:

- IP68 transformers from 1 to 250kVA.
- Step-up and step-down compact power substations from 10 to 500kVA.
- Economizers and PLC for street lighting or energy management
- Constant current regulators and associated devices.

LATEST INNOVATION

Innovation in airfield lighting

The **DIAM4200**, the latest AUGIER constant current regulator, for supplying visual aids, runways and taxiways, specially designed for LEDs lights and other devices.

A fully digital device controlled by IGBT transistors, which reinjects very few harmonics in the network and does not degrade the power factor. It combines innovative, simple and flexible architecture for high reliability and reduced maintenance.

Innovation in energy saving

The **AUGIER-BOX II**, a communicating and geo-located controller, connects LV cabinets and energy savers, to supervise your systems or manage your lighting.



• Cybersecurity • Industrial and urban systems • OIV

COMPANY

AI designs, develops and implements smart SCADA and automation turnkey solutions for infrastructure and industries. With more than 25 years of experience at airports, we are involved in the monitoring and control of airport facilities from the simplest to the most complex in the terminal, control towers and technical buildings.

With the recent acquisition of Euro system, our company represents more than 100 employees and 9 € million in sales.

LATEST INNOVATION

The complexity of airport systems makes it imperative to create sound cybersecurity measures to protect them.

However, A.I. have observed that there is today a gap between the excellent efforts of IT services to protect systems and data against cyber attacks and the protection required at “machine level” to ensure that the many electrical and mechanical systems of the airport remain resilient.

A.I. consultant engineers, through an inter-disciplinary approach, can analyse the security risks to airport infrastructure and propose solutions to both prevent security breaches and mitigate damage to industrial systems. This approach represents an innovation.

In addition to engineering, A.I. provides innovative solutions :

- Security centre, all-in-one modular system provides authentication servers, network segmentation, backup & recovery, log management, etc.
- Intrusion detection systems capture the behaviour of industrial systems through network activity, PLC programs and expert rules.





Quality since 1928



- Design • Security • Personalization
- Ergonomics • Optimized management

COMPANY

Founded in 1928, Les Ateliers Réunis Caddie® is a family-owned business of international renown. Caddie® is the leading French supplier to the supermarket, logistics, and airport sectors worldwide. Present on all continents, the Galaxy and Equinox luggage racks have contributed to the success and international renown of the Caddie brand. The new **Flylight** trolley brings a new standard to the market.

LATEST INNOVATION

CADDIE FLYLIGHT (new luggage trolley for passengers)

DESIGN

A revolutionary new design for passenger comfort and airport branding.

CAPACITY

Optimized ergonomics and maneuverability as well as highest level of safety. Available in 3 or 4 wheels.

MANAGEMENT

Innovative design for optimized fleet management and easy nesting, reduced weight. RFID or barcode tracing option.

INNOVATION

- Unique design and available in multiple colours.
- Secured rear holder for handbags, laptop satchels, etc.
- Large, optimized advertising space.

SECURITY

- Steel frame tube 40x20; stainless steel as an option. Brake integrated in the handle.
- Safety instructions on handle or on customised plates.
- In rolling walkway versions, a foldable restraining bar keeps luggage from falling off the front.

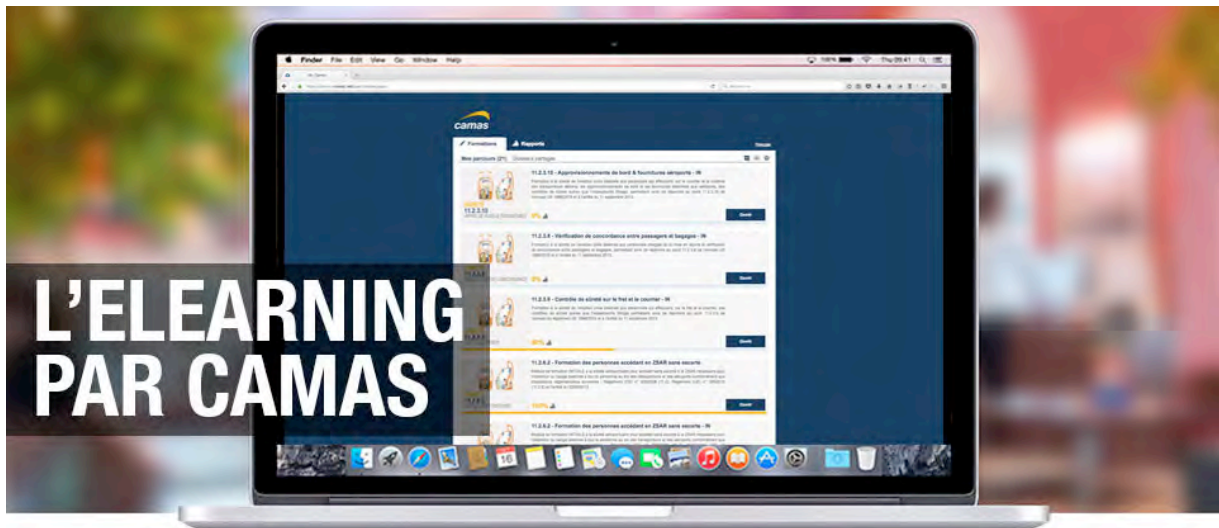
PROTECTION

Built-in protective bumpers.





• E-learning • Training • Education • Skills • Digital



COMPANY

CAMAS is a French international group founded in 2001 in order to meet the professional demand in terms of professional Education and Training for the Aviation and Airport industry as well as Academic Vocational Training. For more than a decade, the group has been working closely with active professionals of the industry to deliver high-quality vocational education.

Today, the group owns 24 physical training centers worldwide. CAMAS is growing rapidly and is now a leader in its field.



LATEST INNOVATION

CAMAS group is devoted to offering more innovative and dynamic training.

In this capacity, we have developed Blended training, a mix of face-to-face training, e-learning, visio-training and virtual classroom to bring a more economic and ecological approach with better results.

Whether the employees of companies or private individuals are learning about a new procedure or acclimating to safety courses, our e-learning platform allows them to complete the training at their own pace and to set their own schedule.

We propose DGR IATA (in French and in English) and DGR ICAO training courses which meet IATA's regulations and ICAO's technical instructions.

The DGAC validates our safety courses. We create courses designed for special features of every airport which follows our training courses. Our team of instructional designers design all courses. A team of trainers also brings its expertise to offer the best training experience.



- Mobility • Connectivity • User expérience
- Mobiles App

COMPANY

Codra is a leading French SCADA company. For more than 30 years, we have worked hard on the technical and operational improvements of our software solutions to let our customers continuously improve their operational performance.

Codra's main business areas are in the Smart Buildings, Energy & Utility and Industry business sectors.

With a strong brand in the French market behind us, we are accelerating our development in the European market and beyond.

LATEST INNOVATION

In early September, Codra announced the release of its latest SCADA Platform version: **Panorama Suite 2017** which features several innovations. The most significant are:

- Enhanced cybersecurity functionality (both active and passive features).
- New protocols (LON & IEC-61850) supported for building management systems and for large electrical installations.
- Improved development tools for multilingual application design.

However, the most important innovation is **Panorama Mobile**. A mobile App available on iOS & Android fully integrated into the Panorama Platform solution.

This mobile solution is designed to share specific SCADA information directly from your **Panorama** SCADA application on smartphones and tablets. It will provide a new Panorama user experience for field operators and will significantly increase their productivity.





- Ergonomics • Flexibility • Productivity
- Space reduction • Eco-friendly

COMPANY

Daifuku Airport Technologies understands a reliable and efficient baggage handling system is essential to an airport's success.

That's why more than 500 airports around the world depend on us to engineer, manufacture, install, integrate, service, operate and maintain the most durable baggage handling systems in the industry.

Daifuku Airport Technologies consists of BCS Group, Daifuku Logan, Elite Line Services, Jervis B Webb and Logan Teleflex.

LATEST INNOVATION

Daifuku's ATec solution for CBRA's (Checked Baggage Reconciliation Area) replaces traditional belt conveyors and static search tables with Mobile Inspection Tables (MIT).

Bags are automatically loaded onto a MIT and delivered to the search agent for inspection. Once the bag is searched, the MIT automatically delivers the bag back to the appropriate conveyor. It is designed to eliminate any need for the agent to lift or turn potentially heavy bags.

The benefits over traditional conveyor-based CBRA's include: improved ergonomics, flexibility, higher productivity, better use of space, and noise reduction.

Energy use is reduced by 68% compared with traditional conveyors. It uses technology from the firm's existing SmartCard Automatec Guided Card product to provide a relocatable work platform for airport's checked baggage resolution areas (CBRA's).

This system is mainly used in the United States but could soon be implemented in Europe.





DEGREANE HORIZON



- **Flight safety** • **Wind shear** • **Wind profiler UHF RADAR**

COMPANY

DEGREANE HORIZON is among the world leaders for meteorological observation system development: Automated Weather Observation Systems (AWOS), Wind profiler RADAR, networks of Automatic Weather Stations.

DEGREANE HORIZON is part of VINCI Group.

DEGREANE HORIZON developed for 30 years a wide range of products and services dedicated to meteorological observation.

LATEST INNOVATION

Horizontal wind shear detection for flight safety improvement.

During approach, landing and take-off phases, aircraft are very sensitive to disturbances induced by sudden and drastic change in wind speed and/or direction. In such situations, it can be difficult or impossible to maintain control of an aircraft and fatalities can occur. To date, no equipment has been available to measure turbulence in the flight path under all weather conditions.

Based on clear air wind profiler RADAR measurement, Degreane Horizon has developed a technology able to detect horizontal wind shear. Specific antenna panels are oriented in the approach axis allowing wind shear detection up to 10 km. Field experiments now underway at Clermont-Ferrand airport, supported by Vinci Airport and Météo France, are validating this innovative solution which is without equivalent in the market.



- Runway security barriers • Perimeter security
- Extensible barriers



COMPANY

Dirickx Group: French leader in the perimeter protection of sites. Designer, manufacturer, installer and maintainer of Dirickx solutions.

LATEST INNOVATION

In response to increasing terrorist threats, new European Directives now require airports to enhance the security of runways by shielding them from intra-airport activity. All non-military runways have new obligations to secure and control runway access along with new requirements for partitioning between different activities and different levels of safety required by each zone.

Dirickx has created a Very Long Aeronautical Gate (VLAG) product to meet these needs. It conforms with ITAC regulations according to the class of aircraft considered, including regulations for helicopters related to the diameter of the rotor. Security management is in accordance with EN13241.

The gate is 2m50 in height. Passages of 25 meters to 60+ meters can be accommodated. Other features include robust motors mounted on oscillating supports and control cards with frequency converters.

- ITWP • ATM • Airports • Decision-making

COMPANY

ENGIE Ineo is a major player in electrical engineering, energy efficiency, transportation systems, telecommunications and services.

With 40plus year-long experience and prestigious worldwide client references in more than 70 countries, ENGIE Ineo designs, deploys and maintains aeronautical systems and products in Towers, Control Centres and Airports.

LATEST INNOVATION

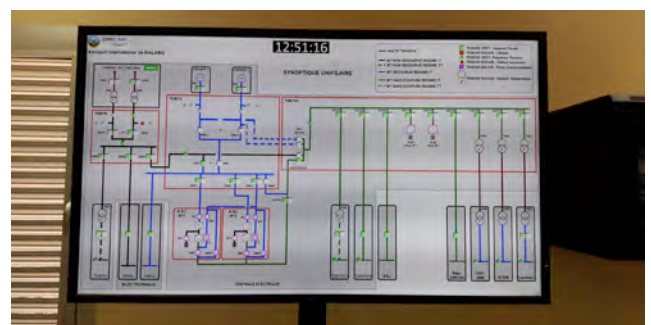
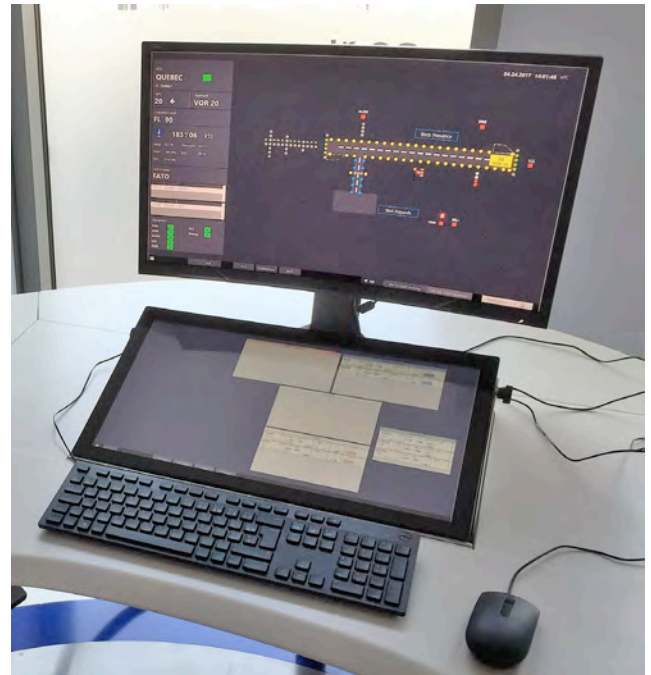
AIRtouch – a system of integrated work positions for Control Towers and Airports.

«Too much information destroys information!»

AIRtouch's role is to optimise the workspaces of Air Traffic Controllers. It gathers and distributes the most critical information about their environment, while supporting their decision-making.

Each user of the system can therefore focus on his tasks and at the same time benefit from direct access to the information pertaining to his responsibilities.

AIRtouch's ability to aggregate heterogeneous information and to comply with specific aeronautical constraints paves the way to a new way of managing air traffic. It encompasses anticipated management of events, active distribution of information and support for decision-making, as well as the improvement of cross-departmental services such as billing, statistics and aeronautical audits.



- Turnaround optimisation • Punctuality • CDM • SESAR



COMPANY

For more than 40 years, GORGY TIMING has designed, manufactured and marketed solutions for precision system timing and secured time broadcasting.

GORGY TIMING has supplied equipment to over 1000 airports worldwide. Our systems give accurate, reliable and secure time references to airport systems such as FIDS, PA, VDI networks, BIDS, access control, and video surveillance.

LATEST INNOVATION

In 2015, Gorgy Timing developed the **LEDI TIMER**, a LED display located at departure gates to give the same time information to all ground support personnel to synchronise their turnaround activities (cleaning, fuelling etc..). This product facilitates operational Collaborative Decision Making (CDM) as embodied in the SESAR programme. The punctuality of pushbacks has improved by up to 25% where the system is installed.



- Biometrics • E-boarding • Passenger processing • Stress-free travel



COMPANY

Idemia is a world leader in digital security & identification technologies with the ambition to empower citizens and consumers alike to interact, pay, connect, commute, travel and even vote in ways that are now possible in a connected world.

With close to 3bn in revenues and more than 14,000 employees, Idemia is the result of the merger between OT (Oberthur Technologies) and Safran Identity & Security (Morpho) completed in 31 May 2017.



LATEST INNOVATION

Passenger processing at airports is still 90% manually processed, generating bottlenecks, costs and undue stress for passengers.

To help reduce queues and waiting time, OT Morpho has implemented Digital Biometric Passenger Processing at Changi and Bangalore international airports.

Through biometrics **MorphoPass** uses a «virtual token» enabling token-less, paperless and hassle-free passenger processing. This service speeds passengers through airport checkpoints. It is difficult to forge, exchange or destroy, and is ergonomic since it is based on the passengers themselves.

MorphoPass is built on Privacy by Design principles protecting private data and dissemination.





- Fly to Gate • Digital security • Biometrics • Self-service experience
- Identity verification

COMPANY

Since 1962, IER is a leading provider of passenger processing technology in the airport environment, using new technologies to meet the specific needs of its clients. IER actively contributes to the industry evolution towards passenger-driven operations and is a key developer of solutions that simplify the passenger journey from check-in to boarding-based on exclusive hardware, software and services. We help our clients reduce costs and increase revenues while enhancing passenger experience.

LATEST INNOVATION

In 2017, IER and Gemalto launched **Fly to Gate**, a biometrics-based self-service travel enabling travelers to create a biometric “token” either at home or at the airport and then use it with a passport to pass through automated gates, automated baggage drop points, security check access gates and self boarding gates.

Fly to Gate answers the growing need for a self-service experience that takes travelers smoothly from their home to the departure gate. This solution demonstrates how strong document and identity verification leveraging the use of biometrics can considerably enhance the passenger journey through the airport while increasing security.

This innovative solution combines IER’s self-service equipment and services with Gemalto’s border management solutions, opening a swift and secure biometric pathway through the airport.





• Indoor localization • Mobile assets • Airports

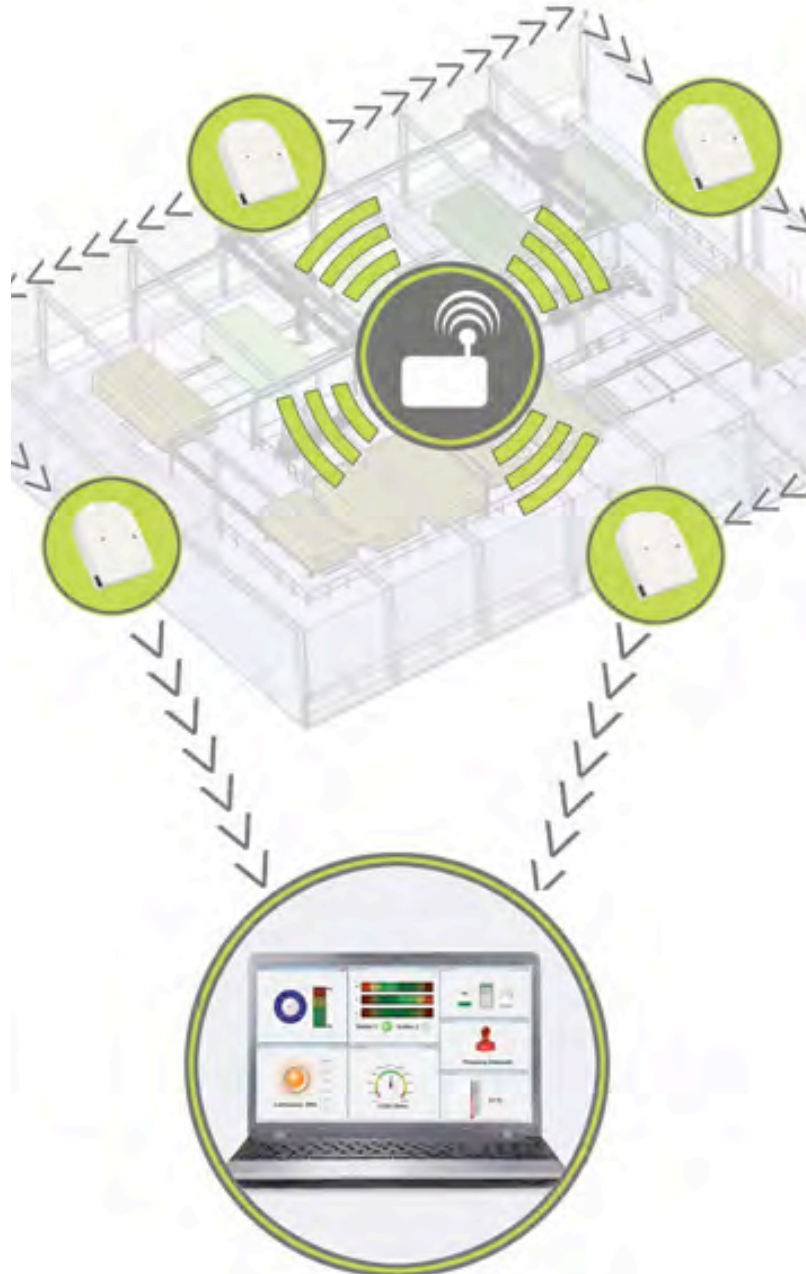
COMPANY

Indoor Localization : Localization without GPS / GNSS coverage and Wireless Sensor Network.

LATEST INNOVATION

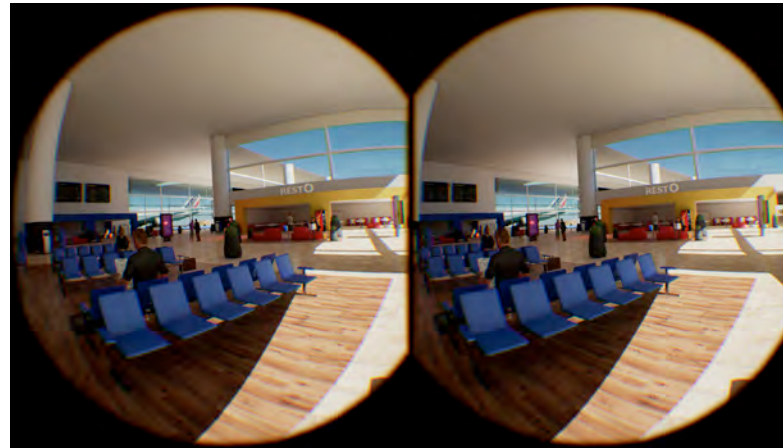
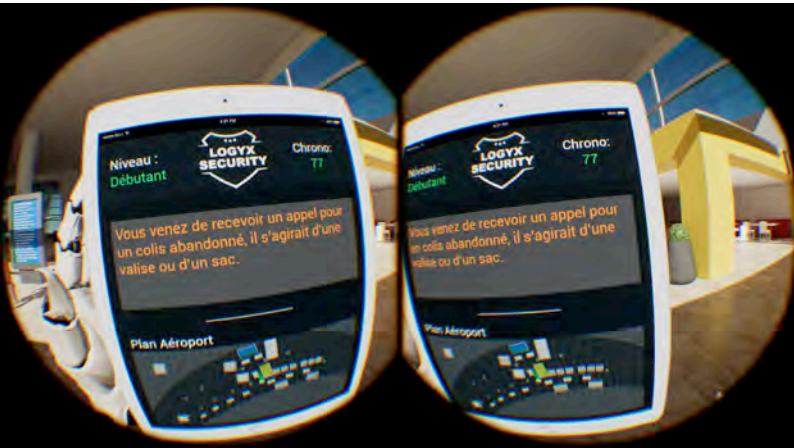
An airport can be equipped with a “dual-localization” solution for tracking mobile equipment (indoor electric vehicles, for example) in real time on the airport map and without a GPS connection.

- 1) A basic tracking chip attached to the mobile equipment gives the information that the equipment is still within the site. This is thanks to the technology LoRaWAN which allows connection to a few kilometers as well as localization by zone, at a very competitive price. A single antenna covers the entire site over several square kilometers.
- 2) An additional advanced solution provides “absolute localization”. This gives the exact “x,y” location of the equipment (to 1 meter accuracy) but also its vertical “z” position (on stairs or at altitude) thanks to the technology UWB. The last known position is sent. Several antennas are installed every 300 meters.





- Safety and security awareness training • Virtual reality
- 3D modelling of airport area • Anomaly and incident detection
- Training software



COMPANY

LOGYx is a private company founded in 2001, offering its up-to-date solutions in the field of airport security in collaboration with the French Civil Aviation Authority (DGAC) and the French Civil Aviation University (ENAC).

More than an IT company, LOGYx is committed to providing training solutions leading to the development of human expertise. Based on a «serious game» approach, LOGYx training platform is including new technologies such as 3D and Virtual Reality.

LATEST INNOVATION

How to better educate airport personnel on safety and security issues?

Security risks have now spread and cover the entire airport area, both on the airside and the city side. Today, more than yesterday, security is everyone's concern and training of personnel operating at the airport has now become crucial.

Thanks to 3D modelling and the use of virtual reality, LOGYx offers airport managers a tailor-made security awareness solution, enabling their personnel to project themselves in their daily working environment. The virtual reproduction of their airport offers controllable and observable conditions, and allows training to better detect and, in fine, appropriately react to any anomaly or incident related to safety or security.

• Geofencing • Security • Mobility • GNSS • Optimisation



COMPANY

Founded in 1999, the company M3 Systems is specialized in services, satellite radionavigation applications (GNSS) and Air Traffic Management (ATM).

M3 Systems is now expanding its offering with specialized product lines:

- GNSS Testing and Measurement in partnership with National Instruments
- High Performance Navigation Equipment and Intelligent Accessories
- Customized navigation applications.

M3 Systems operates in civil and military fields.

LATEST INNOVATION

M3 Systems launches **e-TrackAir V2**, a cost-effective solution for improving the security and efficiency of airport operations through a geolocation service for operators with record-replay and analysis functions.

The new solution is installed on Android tablets and web server without any deployment on the IS of the airport. The transmission of ADS-B messages as an option will allow full integration with the Air Navigation Services (ANS).

e-TrackAir V2 is a specific product for airport services. It allows safe driving whatever the conditions of visibility, better consideration of the situation for drivers, reduction of runway incursions and risk of collisions, automatic generation of reports and formal proof of recording for the management and air traffic control authorities (ATC).



- By pass • Baggage reclaim • Carrousel • Flexibility • Easy



Connecting Baggage Reclaim Carousels

COMPANY

MATREX designs, manufactures and installs baggage-handling systems and passenger-processing solutions. Our systems, designed to last, meet latest international security regulations.

- Check-in banks and counters.
- Belt conveyors, collector/pacer conveyors.
- Manual/automatic sorting carousels.
- Pushers, diverters.
- Baggage reclaim carousels.
- Boarding or Police counters.
- Security search tables, benches, seats.
- Baggage screening machines for standard hand/hold baggage and security checkpoint.



LATEST INNOVATION

MATREX provides a smart solution to connect two baggage reclaim carousels.

Small international airports often face critical circumstance with arrivals of different size aircrafts, one after the other.

Luggage delivery then becomes a real headache for airport operators from 150-bags-small aircrafts up to 1000-bags-intercontinental flights.

Thanks to MATREX, operators can henceforth connect mechanically side-by-side baggage reclaim carousels.

- During day to day operation, both carousels are separated and deliver bags from flights independently.
- When a large carrier lands, the connection of both equipment offers an extended carousels' delivery effective length. Delivery will then be smoother and faster.

Easy to implement in existing airports, MATREX solution brings flexibility to Baggage delivery process. It is already operational in one African airport and shall be shortly available in several other locations.



- **Biometry** • **«Self» technologies** • **Mobility**

COMPANY

RESA develops, markets and maintains innovative and efficient integrated software solutions that meet the operational needs of the airport industry.

Compliant with the international standards, the solutions offered by RESA are divided into four major product families. They suit the needs of platforms of all sizes and support the growth of airports, airlines and handlers.



LATEST INNOVATION

RESA has an ambitious R&D policy to include the latest technologies supporting the efficiency of the airport operations into its solutions.

Security remains at the heart of our clients' concerns. RESA is working, in collaboration with its partners, to address this issue by incorporating all forms of digital identity into the different steps of the passenger journey (managing multi-biometrics with CREWS and PAXTRACK, increasing the reliability of the boarding document control, automating border control...).

These initiatives comply with the local legislations and fit in with IATA's One Identity (ONE-ID) concept. RESA also aims at creating as much added value as possible for the airports, by innovating with mobility and "self" technologies. For an efficient implementation of these technologies, RESA keeps working towards integrated systems based on technical standards, to meet the imperative need to share among airlines.





FOR FURTHER INFORMATION

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