Airport Organiser

A system for improved safety and increased airport capacity

CNS Systems™

Maritime and Aviation Solutions

Airport Organizer

A-SMGCS   CDM

Manoeuvring area   Apron area

SAFETY   EFFICIENCY

INCREASED AIRPORT CAPACITY

Airport Organiser

Improved safety and increased airport capacity enabling the highest level of A-SMGCS.

Today's air traffic is increasing rapidly giving the airports a tough challenge with more ground movements and more intense traffic scenarios.

The airports demand for improved safety and higher capacity is therefore accelerating in parallel of higher traffic density on many airports. The economy in the industry is suffering why expansion of the airports infrastructure is limited, at the same time many airports have reached their capacity limits. The only way to increase capacity with existing infrastructure is by optimising traffic flows.

CNS Systems Airport Organiser has been developed to meet these demanding requirements for safe surface movement operations and more efficient utilisation of airport resources.

With interface to Multilateration and surface movement radar systems the Airport Organiser is able to provide surveillance and control of all ground movements on the airport in the existing environment.

Airport Organiser is based on VDL Mode 4, a system combining VHF data-link with GPS positioning.

The Airport Organiser is certified for safe and time critical communication in accordance with the highest level of Advanced Surface Movement Guidance and Control System (A-SMGCS) requirements.

The Point-to-Point communication in combination with ADS-B offers; surveillance, routing, guidance and control of all vehicle movements in compliance with ICAO A-SMGCS level 5 requirements.

The Point-to Point feature allows communication between all operators on the airport for common situation awareness in order to achieve highest possible safety on the airport. The two-way communication data link will therefore provide the same situational awareness for ATC operation, vehicle driver and the coordinator in order to improve safety and increase capacity on both manoeuvring and apron area.

The system allows data sharing for the ramp area operation for improved ground handling service and efficiency, as well as shorter turnaround times resulting in higher capacity for the airport. Airport Organiser is therefore a critical component in support of Collaborative Decision Making (CDM).

The economical leverage from the system will occur in the result of higher capacity at a lower cost. The system will additionally offer a data link free of charge and an investment drastically well below alternative solutions.
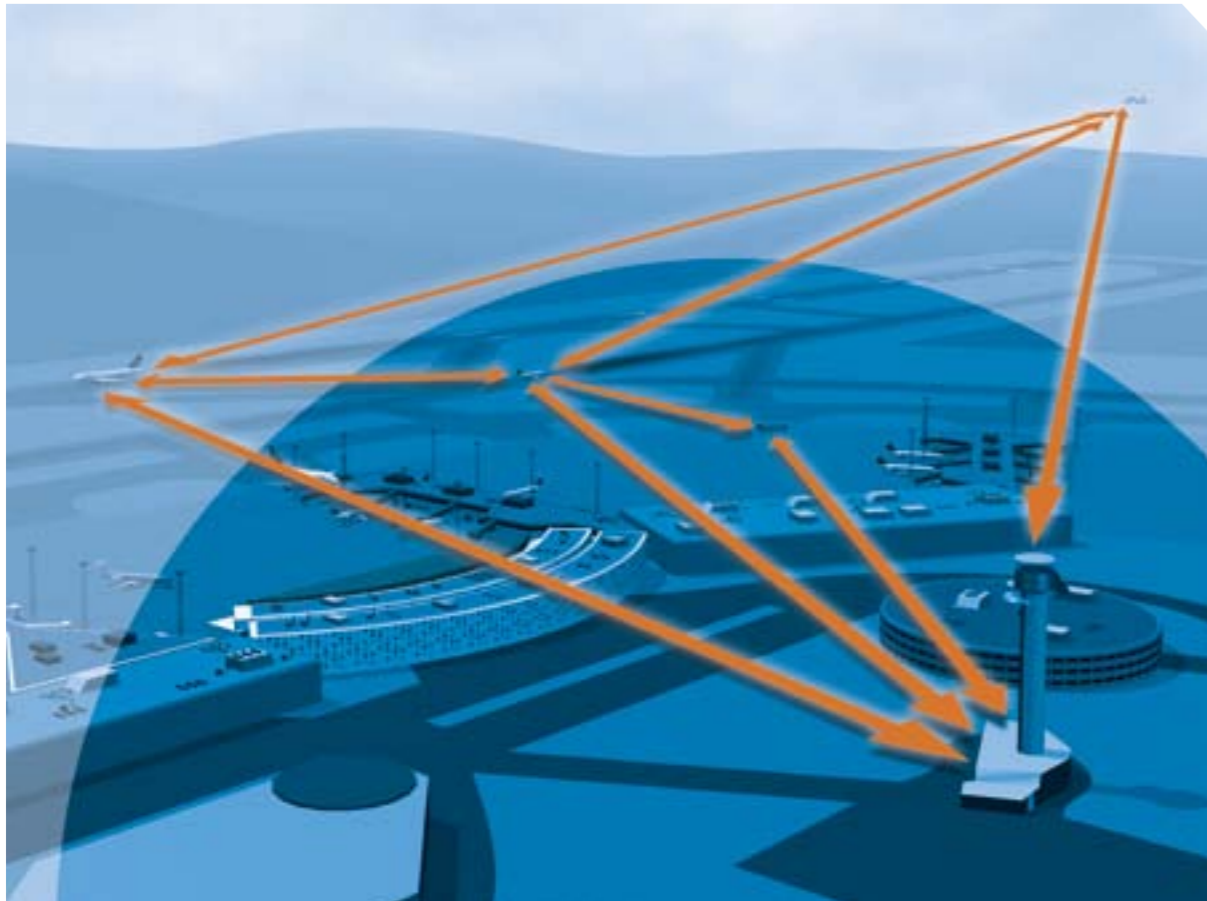
Airport Organiser providing the next generation of A-SMGCS

Many larger airports suffer from capacity during peak time traffic. Congestions and uncoordinated apron activities gradually make the delay situation worse with an increasing need for safer and more efficient runway operations.

In order to improve safety and increase capacity the market is moving into Advanced Surface Movement Guidance and Control System, A-SMGCS, where distribution and sharing of time critical information between all airport users play a key role. The goal is to implement full surveillance, guidance, routing and control on the airport for ATC, aircraft, vehicles and its coordinators.

Airport Organiser is designed to serve as an integrated part of A-SMGCS. Modern technology certified for civil aviation results in a system architecture with interface to existing surveillance infrastructure such as Surface Movement Radar (SMR) and Multilateration.

With Point-to-Point communication between ATC, vehicles and its coordinators, the Airport Organiser is able to bring your airport system to A-SMGCS level 5, the highest safety level defined at the airport.

Airport Organiser enables the exchange of Automatic Dependant Surveillance Broadcast, ADS-B between mobile users and ATC. Together with Traffic Information Service Broadcast (TIS-B), and point-to-point communication, Airport Organiser provides all time critical information necessary to satisfy the most demanding requirements for a safe airport system. Airport Organiser addresses three users on the airport; ATC operation, vehicle operation and its coordinators.

Features for ATC operations

Increasing ground movements without vehicle positions and identification in manoeuvring area has a negative effect on safety. Limitation in conventional technology does not allow the demanding requirements of advanced applications and increased safety for achieving the higher levels of A-SMGCS.

Airport Organiser is based on modern technology certified for time critical applications and improved safety in ATC. Extremely reliable and accurate ADS-B information in combination with point-to point communication enables the following features to be developed for ATC:

- ADS-B providing a complete surveillance picture of all ground movements
- Conflict detection and warnings preventing runway incursions
- Point-to-Point communication allowing Routing, Guidance and Control of vehicle movements
- Restricted area allocation for safe and efficient runway operation
- Confirmation of vehicle operation

Features Vehicle Operation

Many vehicles operate to a large extent in critical situations on the manoeuvring area i.e. runways and taxiways. In low visibility this implies a safety risk leading to reduced capacity. Airport Organiser addresses solutions for vehicles i.e. within follow-me, Snow clearance, friction testing, Rescue, maintenance etc. Surface Operation requires higher efficiency in order to increase capacity within the safety regulations. Airport Organiser combines safety improvement and higher efficiency with:

- Moving map presenting the surrounding traffic, visual route guidance with restricted area allocation
- Digital Area map presenting all movements position and ID for common situational awareness.
- Conflict detection and warning functions for route or area deviations, runway incursions, certain timely plan deviations or collision conflict detection and resolution
- Object identification for more efficient operation on the manoeuvering area
- Point-to-Point communication for addressed communication to users providing routing, guidance, control and confirmation of missions

Features for Vehicles Coordinator

Unknown objects, unacceptable runway conditions, ice, snow and regular maintenance result in runway operation reducing the capacity. Demanding efficiency requirements in order to improve capacity is in conflict with strict safety rules applied on the manoeuvring area.

Airport Organiser bridges this conflict for the coordinator to improve capacity with:

- Airport surveillance including , Routing, Guidance and control of vehicles
- Vehicle Assignment and confirmation of tasks for safer communication
- Restricted area allocation for safe and efficient operation
- Object position allocation for efficient object searching
- Conflict detection and warnings for safe operation
- Statistics for operation optimisation

Airport Organiser for
efficient and superiour
Ground Handling service

A considerable part of the airport delays are related to Ground Handling activities. The lack of relevant flight information, vehicles status and Apron information in right time, results in uncoordinated operations. The challenge for Ground Handling operators is to improve service levels using minimum of resources.

Airport Organiser is designed to coordinate all vehicle activities on the airport according to Collaborative Decision Making concept (CDM). The CDM concept is to share information between users at the airport in order to benefit from relevant information data.

The design of the Airport Organiser System guarantees that each user has access to the latest information available in real-time over the VDL Mode 4 digital link. The system can interface to the airport database where Airport Organiser uses the latest common airport infor-

mation available such flight arivals and departures for distribution to the users.

The system offers specialised user software applications for different operators such as bus fleets, fuel trucks, catering vehicles, tow cars, baggage handling, de-icing, bus-transportation etc.

Airport Organiser for Ground Handling primarily addresses vehicle coordinators and vehicle clients. Further more, Apron control can benefit from the system through ADS-B surveillance.

Features Vehicle coordinator

Frequent reorganisation of gate allocation and change of estimated landing times over voice communication results in insufficient coordination. Lack of vehicle status, positioning and coordination with different vehicles results in difficult planning for the coordinator leading to problems serving the aircraft and passengers in time.

Airport Organiser is designed for Just-in Time planning in a dynamic and complex airport environment. On line interaction with vehicles and airport databases allow the coordinator to handle more complex situations and larger vehicle fleets with improved service level and more effective resource utilisation.

- Just- in- time task assignment and Resource allocation for best efficiency
- Task confirmation from the vehicle client eliminating misunderstandings
- Status reporting from vehicle client for just-in-time planning
- Airport surveillance for situation overview
- Multiple co-ordinator clients to transmit optimum task assignments
- Statistics to measure service levels and detect areas for improvements

Features Vehicle Driver

Voice communication during stress full situations on sagurated frequeqencys may lead to misunderstanding and lack of information in order to accomplish the missions in time. Airport Organiser provides an on board display with the current up to date flight plan with actual arrival times, gate allocation and aircraft positions given by the coordinator. Airport Organiser allows the driver to receive assignments after the aircraft has landed in order to perform his mission efficiently and safely even in low visibility. Airport Organiser provides;

- Task assignment and task confirmation with gate, flight and time information for efficient operation
- Status confirmation for effective resource allocation
- Airport surveillance useful under low visibility conditions
- Routing and Guidance for safe unknown personal operation
- Interfaced with other technical system on the vehicle

CNS Systems AB (CNS) is focused on solutions for communication, navigation and surveillance within shipping and aviation, based on the AIS and VDL Mode 4 standards. Combining know how from our customers business areas with high technical competence in transponder technology, radio communication and network solutions, we deliver standard products as well as customised applications developed in close cooperation with our customers.

CNS delivers reliable products, based on the latest technology, developed and manufactured according to rigorous quality standards. Certified for use in "critical applications" and following standards they are always easy to integrate with the customers present systems and with future investments.

With a flexible organisation working with commitment and customer focus CNS have successfully developed long term customer relationships. To operate in large projects on a global market CNS has a number of strategic partnerships with internationally successful organisations.

Within aviation we offer solutions for safety and efficiency in airport operations supporting A-SMGCS and ADS-B solutions for Civil- and General Aviation. In close cooperation with our customers, civil aviation authorities, international airports and aviation operators around the world we develop customised app-lications based on CNS Systems Airport Organiser and our ADS-B compatible transponders and network solutions.

CNS has its main office in Linköping, Sweden with reputation for world class high tech industry within IT, communiacation and Aviation.

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