



This project has received funding from the European Union's Seventh Framework Programme for research, technological development and demonstration under grant agreement no 608090.



On Demand Surveillance Systems within an Oil Refinery

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Topics



1. Brief description of the refinery test site
2. Use case overview
3. Expected results



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1. Refinery Test Site





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1. Refinery Test Site



- **The refinery is one of the biggest high complexity industrial plants in the Mediterranean Sea**
 - 300,000 barrels per day of refining capacity
 - More than 80% of production is of medium and light distillates with low environmental impact (mainly diesel and gasoline)
 - Integration with petrochemical and electricity production



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1. Refinery Test Site - IGCC



IGCC power plant overview



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1. Refinery Test Site - IGCC



- The integrated gasification combined cycle (IGCC) plant is the second largest in Europe integrated inside the refinery
- The plant has three gasifiers, three GT/HRSGs/ST (gas turbine/heat recovery steam generators/steam turbine)
- The plant produces about 575 MegaWatt electric



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2. Use Case Overview



- **Let us suppose that:**
 - ✓ Border access control to the IGCC area could be improved to better guarantee security and keep malicious entities away from the plant
 - ✓ Security should be enforced within the system using some mechanisms such as
 - ***Mobile ID check devices***
- and
- ***3D cameras***



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2. Use Case Overview: Mobile ID Check Devices



Mobile ID check devices provided by AIT

INSERT BRIEF DESCRIPTION OF THE DEVICES AND/OR TECHNOLOGY.



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2. Use Case Overview: Mobile ID Check Devices



To validate its approach (in terms of intrusion detection rate, energy/time costs, etc.) the Hyrim project is planning an extensive set of simulations. **A software simulator has been developed** in order to reproduce the environment of the monitored facility, instantiate employees, intruders and security guards similarly to a real case scenario.

The simulation model (based on an XML file description) replicates the physical environment of the facility: geographic areas as in the real map, the paths/roads representing the main waypoints (e.g. intersections, gates, etc.); also workers and security guards as “***model actors***”.

According to a fixed strategy, **ID-checking missions** are assigned to security guards who are supposed to move to a specified location and then start checking the IDs of the workers.

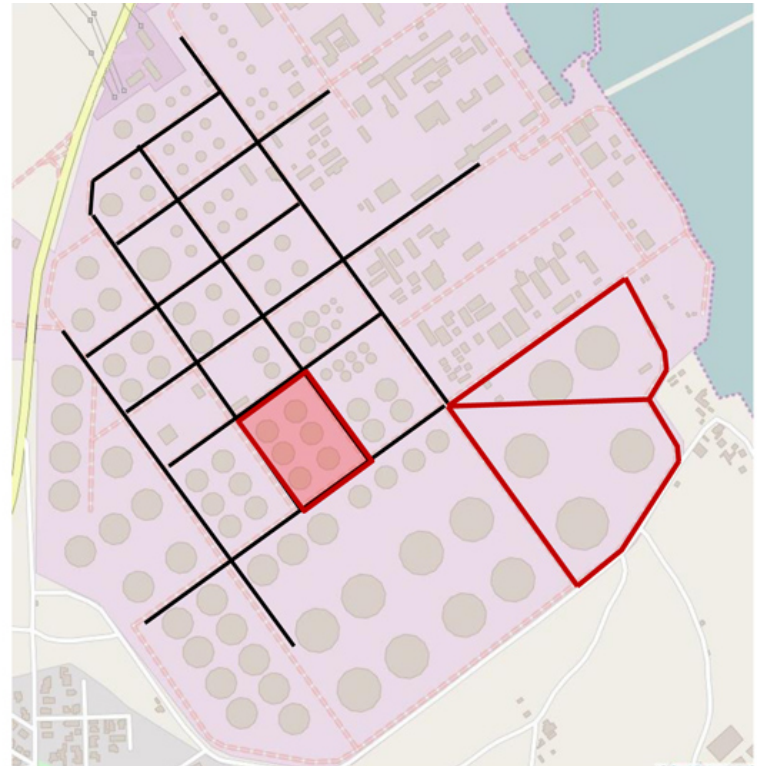


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2. Use Case Overview: Mobile ID Check Devices



- The facility is divided into several areas
- Each area has a security level
 - The higher, the bigger is the caused damage by an attack
- To navigate from one area to another, we follow fixed paths.
- Movement inside an area is random (RWP model)



2. Use Case Overview: Mobile ID Check Devices



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To ensure a realistic scenario, Akhela is providing information regarding the refinery and the IGCC in order to support the creation of the XML description file that feeds the simulator.

The information can include input such as:

- Map of the refinery
- Security level for each zone
- Employees information (number, profile, mobility pattern)
- Security guards information (number, profile)
- Response to intrusion
- Attacker model



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2. Use Case Overview: 3D Cameras



3D cameras provided by AIT

INSERT BRIEF DESCRIPTION OF THE DEVICES AND/OR TECHNOLOGY.



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2. Use Case Overview: 3D Cameras



Description of the UC approach as for the Mobile ID check, see slide n. 9 and following ones. To Be COMPLETED!



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3. Expected Results



Mobile ID check devices

The simulation is expected to be useful in better understanding and managing the risks; also the flexibility to run different simulated tests should guarantee a wide range of configurations and scenario to evaluate.

3D Cameras

INSERT BRIEF TEXT.