

Advanced systems for prevention and early detection of forest fires

ASPIres

Advanced systems for prevention & early detection of forest fires

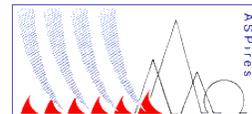
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Advanced Systems for the Prevention and Early Detection of Forest Fires

WORKSHOP Opening
Military Academy, Skopje, March, 21st, 2019

Coordinator: Prof. Dr. Peter Peinl, peter.peinl@informatik.hs-fulda.de
Fulda University of Applied Science

Project financed in the EU civil protection framework, 2016 call
Contract no : ECHO/ SUB/2016/742906/PREV03
European Commission DG ECHO



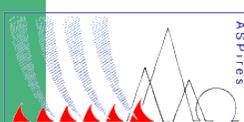
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Workshop Agenda

- Welcome
- Presentations of project partners
- Discussions
- Summary and conclusions
- Networking Event



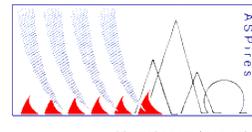
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Welcome of participants

- Innenministerium Land Hessen
- Innenministerium Freistaat Bayern
- Innenministerium Land Niedersachsen
- Landkreis Fulda
- Feuerwehr Fulda
- Hessische Landesfeuerweherschule
- THW



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Partners

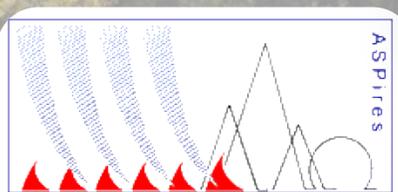
Fulda University
of Applied Science (DE)

Military Academy Skopje (MK)

Comicon Ltd (BG)

InterConsult Bulgaria Ltd (BG)

Cluster NCITES (BG)



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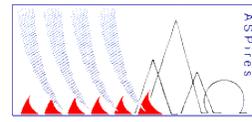
Subject/problem



Prevention & Early Detection of Forest Fires

Forest fires

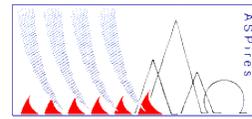
- ❑ endanger human life
- ❑ cause enormous
 - ❑ short-, medium- and long-term
 - ❑ economical and ecological damage
- reduce biodiversity



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Forest fire scenario

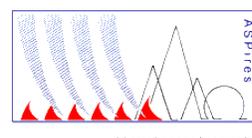


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Overall project goal

- ❑ Support all European Crisis Management Information System (CMIS) in the
 - ❑ design and implementation of diverse methodologies for the early warning and detection of forest fires,
 - ❑ organisation, conduct and tactics of fighting catastrophies
- ❑ Assessment, test und deployment of novel concepts and information technologies
 - ❑ sensors, cameras, drones
 - ❑ mobile communication technologies, Cloud, IoT



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Partners





Hochschule Fulda (DE)

- ✓ First University of Applied Sciences in EUA to award doctoral degrees in focus research areas
- ✓ Participation and coordination of numerous European projects
- ✓ Students/professors/faculties >9000/170/8
- ✓ Activities in ASPires are

Coordination, dissemination (public relations)
project management, finances,...

Scientific and technical contributions



Military Academy Skopje (MK)

- ✓ Is the ONLY military institution in the Republic of North Macedonia with university education AND research.
- ✓ Its fundamental mission is to conduct research AS WELL AS to teach, train and qualify
- ✓ personnel for duties and tasks in
 - the Ministry of Defence
 - the army of the Republic of North Macedonia
 - the Crisis Management System
 - the Civil Protection System.

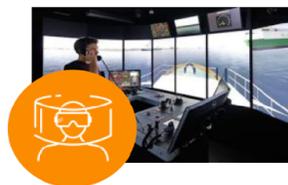
Competencies:



Software development
With Microsoft's technology stack



Industrial Internet of Things
More than 130 man-years of experience



Simulation and Virtual Reality
From headset apps to hydraulic simulators



Technology partners:

Microsoft Partner

Gold Application Development
Silver Application Development
Silver Data Analytics
Silver Datacenter





Comicon Ltd (BG)



Comicon is a SME in areas of R&D- and engineering in Sofia und provides products and services for industry-automation.



Comicon is a R&D company

and provides hardware and software for industrial networks, wireless communication, controller, interfaces, converters, ...

works in research and development of prototypes (hardware and firmware) and offers the integration of systems of different producers an.



Cluster NCITES (BG)

- ✓ National Cluster for Intelligent Transport and Energy Systems (NCITES) was founded in 2014 in Sofia. <http://www.cluster-ites.org/>
- ✓ Voluntary association of 20 companies and institutes from the industry- and Inter-industry sector for production in the Danube region and the Black Sea basin.
- ✓ Goals
 - Development of scientific and practical projects
 - Intelligent management and control systems for telecommunications, energy, environment and business

PROJEKT TIMING AND GENERAL PROJECT INFORMATION

Duration: 2 years

Begin: 01.05.2017

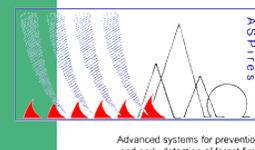
End: 31.05.2019

Home page: www.aspires.eu

Facebook

ResearchGate

LinkedIn



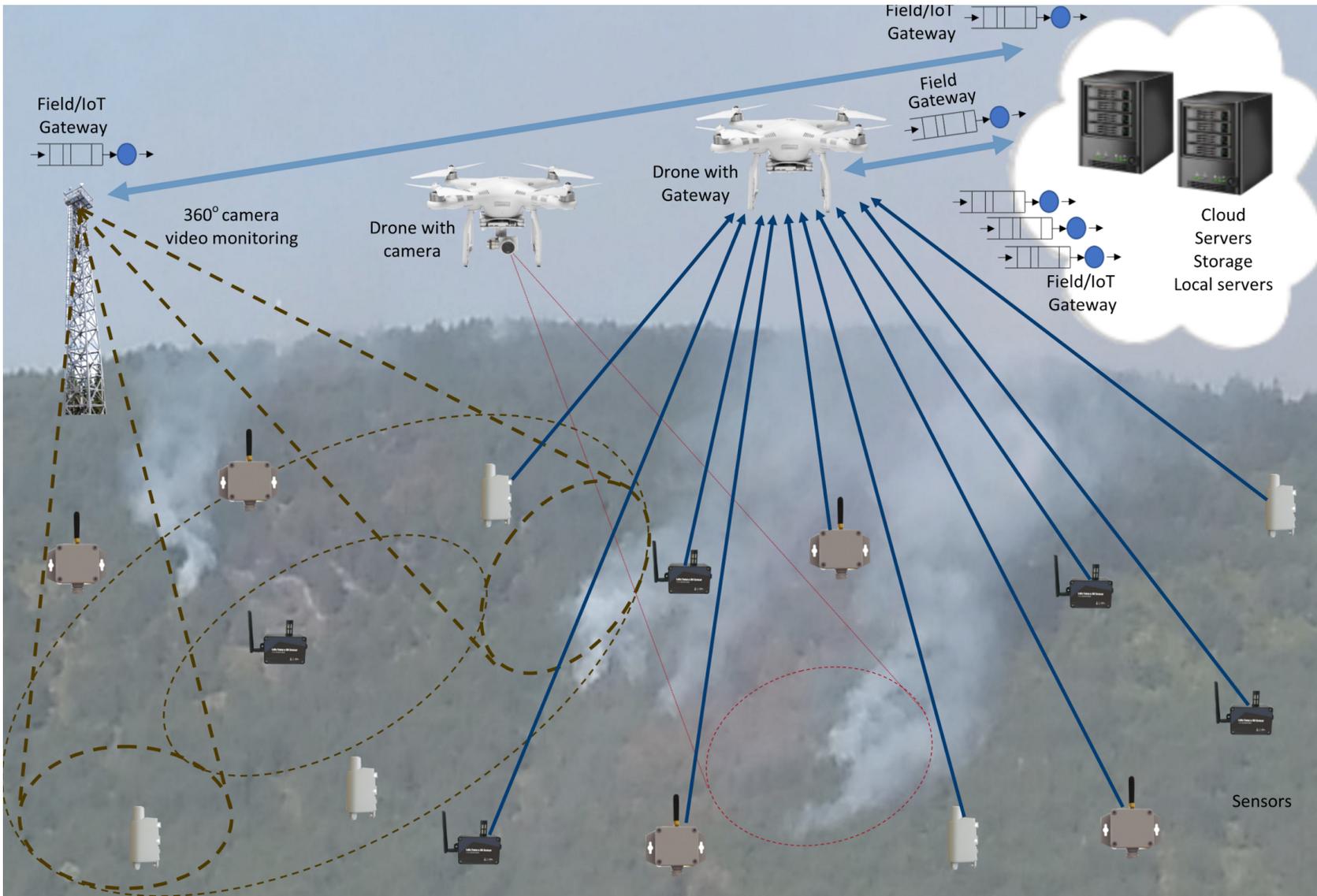
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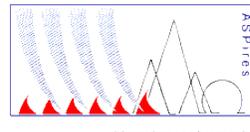
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ASPires
System overview





ASPires components and technical equipment



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Technical challenges

Sensor technologies and gateways

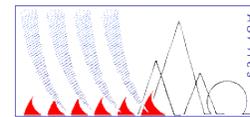
- ❑ Assessment and integration
- ❑ Sensor technologies
 - ❑ images (cameras)
 - ❑ Chemical and physical parameters
- ❑ Gateways

Interoperability and standards

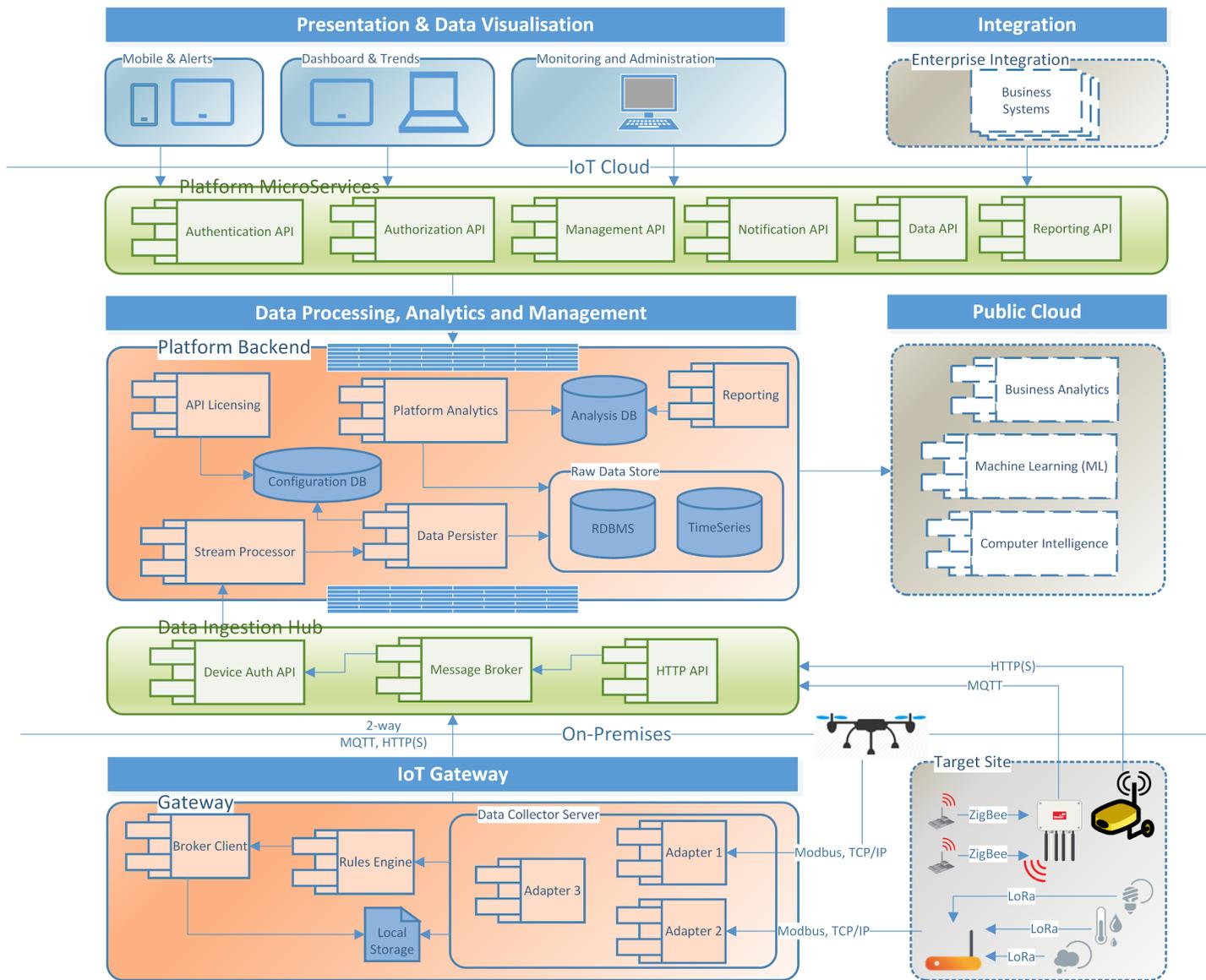
- ❑ Information integration
 - ❑ Data models
 - ❑ Data flows
 - ❑ Data acquisition and long-term storage
- ❑ Communications protocols

End-user support

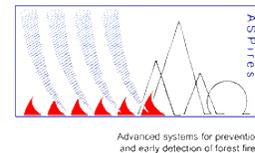
- ❑ Web applications
- ❑ Mobile applications
- ❑ Web services



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ASpires cloud software System architecture



Tasks of the project

- A. Management and reporting to the EU commission
- B. Dissemination (public relations)
- C. System definition
- D. Communication protocols and interfaces between the different participants of the Crisis Management Systems (CMSs)
- E. System implementation and integration
- F. System test, verification and validation
- G. Integration into improved and extended



Summary



Summary

✔ Prevention and early detection of forest fires

Integrates sensor networks and mobile technologies (drones) to capture and gather data of existing CMIS.

✔ Mobile technologies (drones) and their advantages

Cover larger areas and difficult terrain.

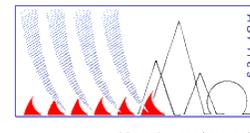
Allow to detect more forest fires in an earlier phase.

In particular in sensitive protected areas (rare species of trees, etc.).

✔ Implementation in selected test areas

in cooperation with civil protection authorities in North Macedonia and Bulgarien.

✔ System will be open to all European states

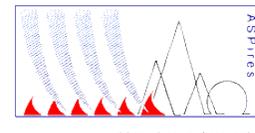


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Thank you!
Danke schön!

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Representatives from following institutions

Deputy Prime Minister and Minister of Defense Mrs. Radmila Shekerinska

Ministry of Agriculture, Forestry and Water Economy

Ministry of Defense

Army of the Republic of North Macedonia

Ministry of Environment and Physical Planning

Crisis Management Center, Skopje

Directorate for protection and rescue, Skopje

Public Enterprise North Macedonian Forests

Public Enterprise National Park Mavrovo

Public Enterprise National Park Pelister

Fire Service of Tirana, Albania

Prime Minister Office from Kosovo

Kosova Environmental Protection Agency

Directorate for protection and rescue Kosovo

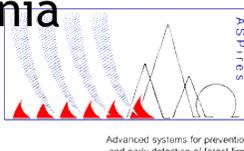
Fire Safety and Civil Protection Chief Directorate, Ministry of Interior

Bulgaria

EU representative in North Macedonia

Representative from Embassy of the Republic of Albania

Defense Attache, Embassy of the republic Bulgaria



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