CELTIC-NEXT Proposers Day

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Pitch of the Project Proposal

DECODE: AI-powered communication to Detect Contagious Diseases

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Teaser

Benefits to society:

- Detect and avoid fast distribution of pandemics
- Monitoring patients in crowds and workspaces
- Reduce healthcare cost by reducing the probability of disease distribution
- Emergency alerts to centers for crisis management

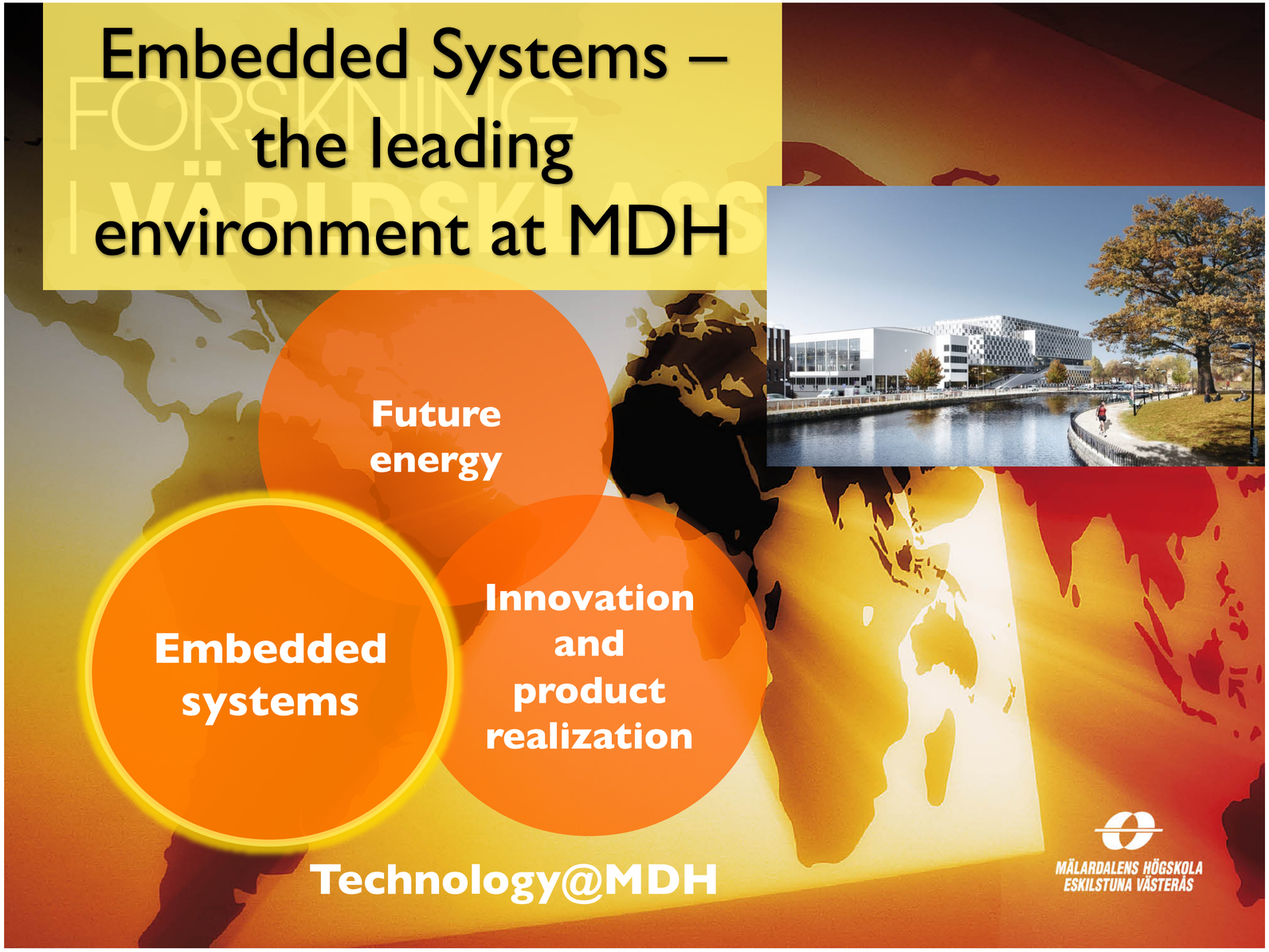
Added value:

- Novel use cases that require integration of AI algorithms and communication technologies, such as 5G/6G

Why participate:

- We believe that communication networks are key enablers for fast detection and monitoring future pandemics

Organisation Profile



Research areas within the embedded systems environment:

- Wireless communication
- Real-time systems
- Sensor systems for health
- Software engineering
- Robotics
- Dependable systems
- Verification and val

Proposal Introduction

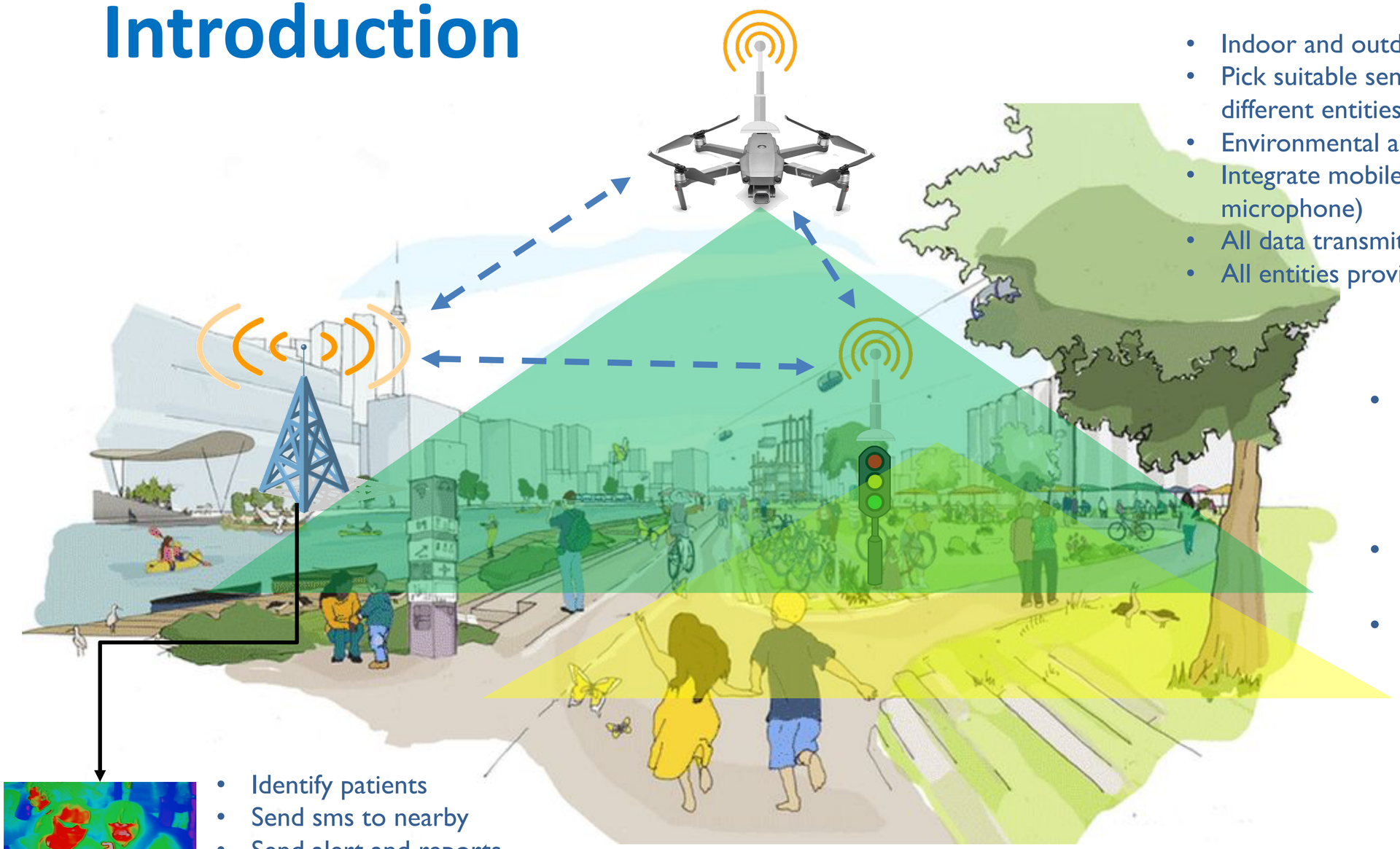
Vision:
Define new use cases focusing on monitoring cities and indoor environments by collecting measurements from human body and their activities

Motivation:
Shocking sudden pandemic is a threat to our social life, while the end time is still unclear. Moreover, it is possible to experience similar pandemics in future. History of recent pandemics: MERS (2002-2004), Ebola (2013-2016), SARS (2019-ongoing)

Content:
- Define use cases, select sensors and radio technologies
- Reliable and real-time communication protocols to transmit big data in both indoor and outdoor
- Feature extraction, machine learning, decision support and data storage techniques to process and store vast quantities of data

Proposal Introduction

- Indoor and outdoor environment
- Pick suitable sensors, e.g. lidar sensors employed at different entities (drons, traffic light, etc)
- Environmental and health sensors
- Integrate mobile sensors (GPS, accelerometer, microphone)
- All data transmit to BSs
- All entities provide data processing but at different level



- **Outcome:** design and develop some practical use cases to detect contagious disease for indoor and outdoor
- **Impact:** directly on healthcare sector, economy and society
- **Project duration:** 36 months

- Identify patients
- Send sms to nearby
- Send alert and reports to crisis management

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Partners

Current Swedish partners:

- Mälardalen University
- AFRY (probably)
- Techmarket
- Teracom (probably)
- Västerås municipality
- Västerås hospital (probably)

Looking for the following partners:

- Municipalities (to enable tests in cities)
- Hospitals (physicians to define required health parameters)
- Industries in the area of:
  - Telecom/operator industry (to provide access to network infrastructure)
  - Networking (to devise reliable data communication protocols)
  - AI solutions (to devise intelligent algorithms)
  - IoT solutions (to employ IoT radios, specially in workspaces)

Contact Info

For more information and for interest to participate please contact:

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Presentation available via: