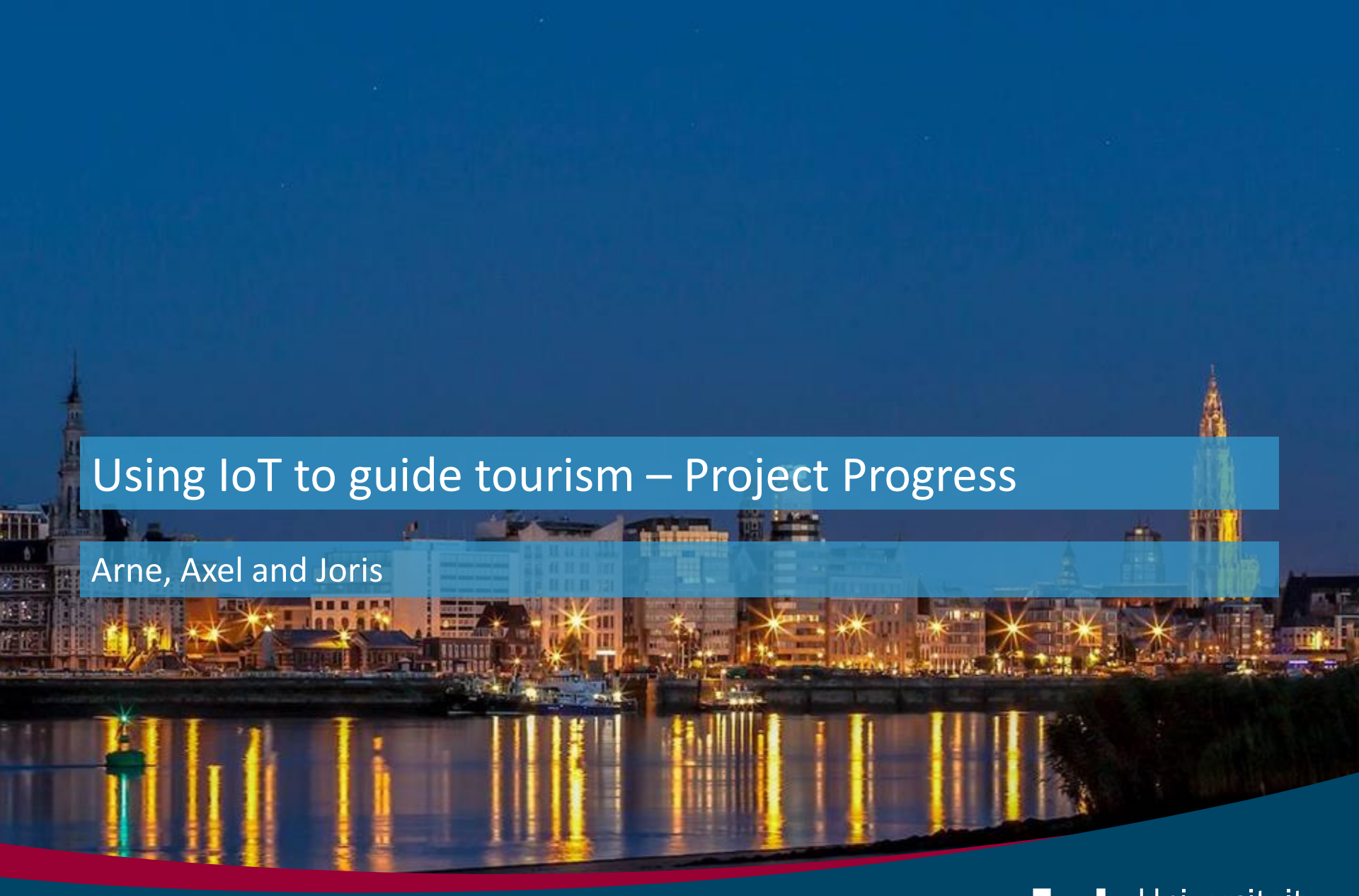


Using IoT to guide tourism – Project Progress

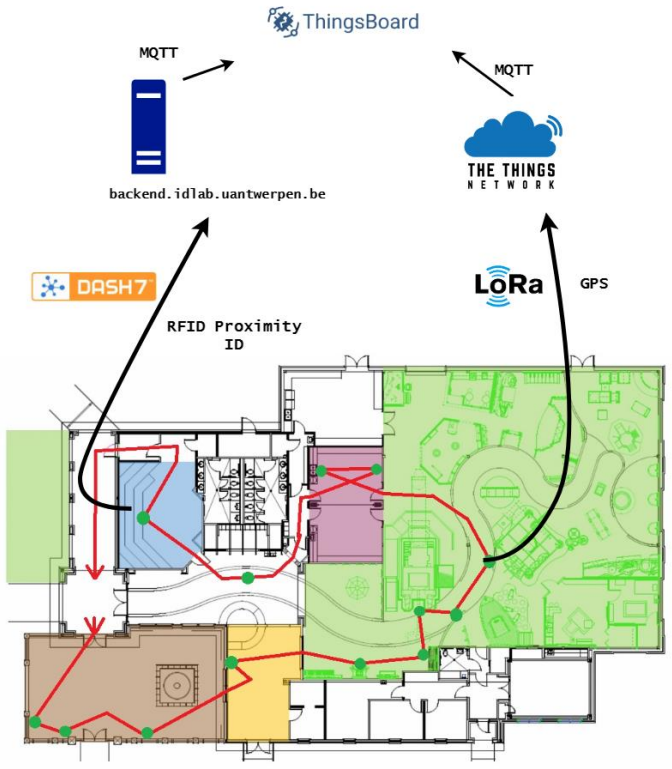
Arne, Axel and Joris

Universiteit Antwerpen

The concept – Recap

- Hassle-free guided tourism experience
- Indoors: museums
  - Tour around the museum
  - Relevant info when close to things

- Outdoors: city tours
  - Provide location to guide tourists around
  - Relevant info when close to things



Techniques and technologies

RFID tag

Indoor

- Fingerprinting localization using Dash7 to guide around museum [Joris]
- Accelerometer decides when deep sleep is possible [Axel]
- Dash7 to transmit accelerometer data [Axel]
- [OPT] Passive RFID => proximity detection for POI’s

Outdoor

- GPS for accurate location [Arne]
- LoRaWAN to transmit location data [Arne]

Progress - GPS

- Communication with the XM1110 module is established
- Data can be retrieved via I2C
- An acurate position is available

TODO – GPS

- Communication with the XM1110 module is established
- Data can be retrieved via I2C
- An acurate position is available

- Data (NMEA packets) needs to be parsed automatically
- Parsed information need to transmitted

Progress - Fingerprinting

- Send DASH7 packet with push button
- Data in mongodb


```
_id: ObjectId("5beafa8801697e222881c6a0")
y: "1"
x: "1"
gateways: Array
  0: Object
      gatewayID: "4337313400210032"
      rx_level: "59"
  1: Object
      gatewayID: "433731340023003d"
      rx_level: "67"
  2: Object
      gatewayID: "42373436001c0037"
      rx_level: "68"
  3: Object
```

TODO - Fingerprinting

- Send DASH7 packet with push button
- Data in mongodb

- Training DB
- KNN algorithm

Progress – Handheld Device

- Movement detection with accelerometer

ToDo – Handheld Device

- Movement detection with accelerometer

- Bring device in sleep mode when not moving
- Send D7 message only when moving
- Switch from D7 to LoRa and back when passing the RFID-tag