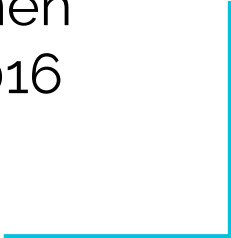




Museum Explorer

Timo Korkalainen
ARea16, 8.6.2016



Turun yliopisto
University of Turku

MIRACLE
MIXED REALITY APPLICATIONS FOR CULTURE AND
LEARNING EXPERIENCES

MIRACLE

- Mixed Reality Applications for Culture and Learning Experiences
- Project duration 2015 – 2016
- Research units
 - University of Turku: Technology Research Center, Finnish History
 - VTT Technical Research Centre of Finland
 - University of Tampere, School of Information Sciences
 - University of Helsinki, Unit of Science Centre Pedagogy
- Financed mainly by Tekes – the Finnish Funding Agency for Innovation
- 19 participating organizations, including museums, public organizations and small enterprises



Turun yliopisto
University of Turku

MIRACLE
MIXED REALITY APPLICATIONS FOR CULTURE AND
LEARNING EXPERIENCES

This Museum of Mine



Turun yliopisto
University of Turku

MIRACLE
MIXED REALITY APPLICATIONS FOR CULTURE AND
LEARNING EXPERIENCES

Personalized Museum Experience

- Audiences start to expect personalized experiences where the right information comes to them without asking
- The right data itself is not enough, also the medium has to be compelling
- Yet concrete, physical and shareable experiences matter the most

AR provides layers of personalized information over the physical experience

Leave No Story Behind

- Most storytellers want their stories to be heard
- Most citizen want to influence the surrounding world
- Activate audience to directly influence the exhibition content, reward them by disclosing the very effect they've had
- Reward museum staff writing the content by giving them direct feedback based on end-user behaviour

AR provides a new way of measuring user retention and points of interest

Navigating Information Overload

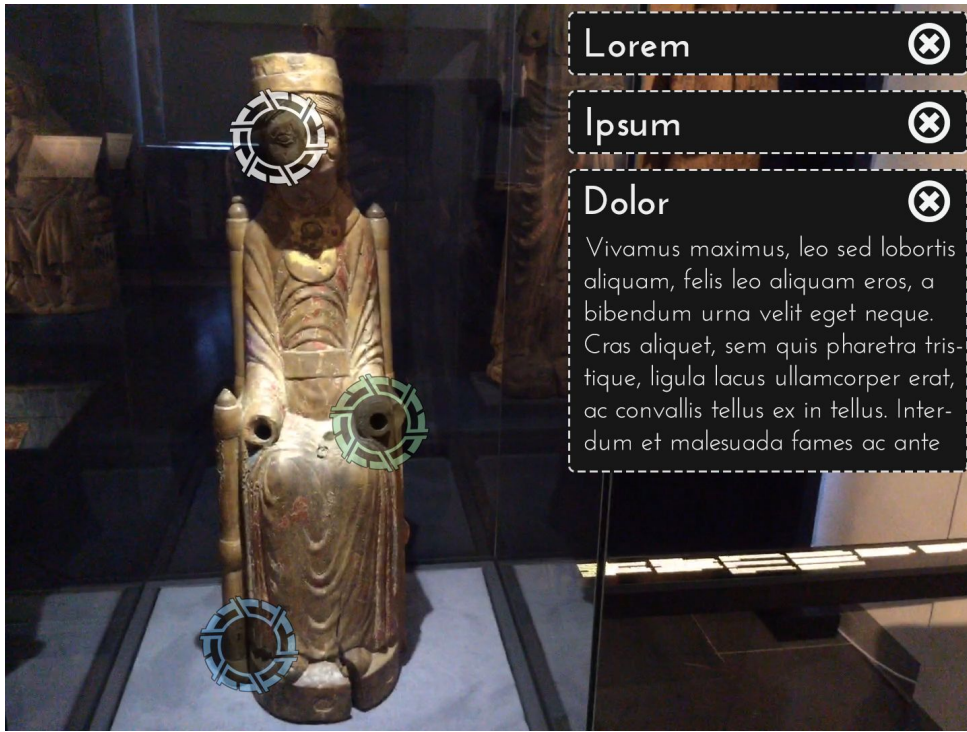
- Museums and the museum staff are filled with “stories” to be told and heard
- All stories find avid listeners when presented to the right audience
- All visitors can be intrigued when presented the right stories
- Yet, presenting everything for everyone results in favor of no one

Challenge: Filter the right content for the right audience



Turun yliopisto
University of Turku

MIRACLE
MIXED REALITY APPLICATIONS FOR CULTURE AND
LEARNING EXPERIENCES



Museum item augmented with discoverable in Points of Interest to find out more information

The Levels of Filtering

1. Guide the user around the museum on personalized museum tours based on chosen keywords or premade theme tours
2. On each item, start with less detailed view and introduce more information based on user's choices
3. Finally, introduce opinions and views of other visitors for those interested in the current social perspective

An extra level: not all history experts agree on “facts”

Strength in Unity



Turun yliopisto
University of Turku

MIRACLE
MIXED REALITY APPLICATIONS FOR CULTURE AND
LEARNING EXPERIENCES

Don't Repeat Anyone

Built upon readily available, modern components that talk with each other via well defined interfaces.

1. APIs
2. MongoDB
3. NodeJS, Meteor
4. ARML / DDP
5. Unity / HTML

Open for re-evaluation on any level, any time.

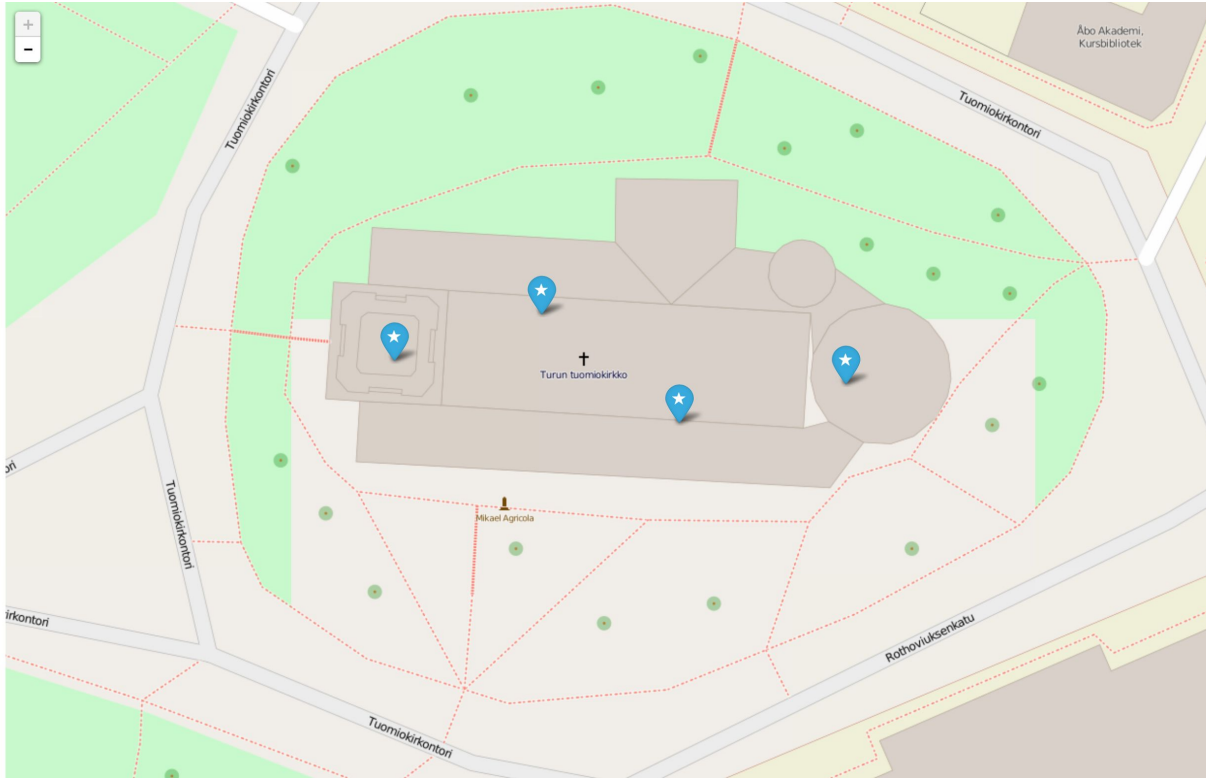


Turun yliopisto
University of Turku

MIRACLE
MIXED REALITY APPLICATIONS FOR CULTURE AND
LEARNING EXPERIENCES

Author Anywhere

- Web based content management system
- Used by the museum staff to create most of the content linked to the augmented items
- 3D editor to align rich content around the items
- Automated connections via APIs to existing museum databases to minimize double effort in upkeep
- Augmented Reality Markup Language to describe the content for viewer applications



Leaflet powered view on the content locations of an ARML based application

Exhibition Experience

- Unity based mobile application for Android & iOS
- ALVAR 3D tracking for three dimensional items, image based 2D tracking for paintings
- Most content, including runtime loaded visuals, automatically updated from the CMS, little need for app updates
- Automatic data logging to provide usage statistics



Turun yliopisto
University of Turku

MIRACLE
MIXED REALITY APPLICATIONS FOR CULTURE AND
LEARNING EXPERIENCES

Make experiences, not technology



Turun yliopisto
University of Turku

MIRACLE
MIXED REALITY APPLICATIONS FOR CULTURE AND
LEARNING EXPERIENCES

Thank you!

