

Design and Implementation of Accessible Open Source Augmented Reality Learning Authoring

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Project Description

The project aims at developing an inclusive and accessible open-source Augmented Reality (AR) learning authoring tool by using open-source libraries and approaches. The tool will allow to author learning applications in different settings and disciplines for university classrooms, on-the-job training and connects to open-source Learning Management System such as Moodle.



Different AR Applications

Specific Objectives

- » To identify the requirements for developing an accessible open-source AR learning authoring tools.
- » To develop an open-source tool for authoring AR learning, building on an existing open-source learning tools
- » To validate the AR authoring tools through implementing a pilot AR learning application.

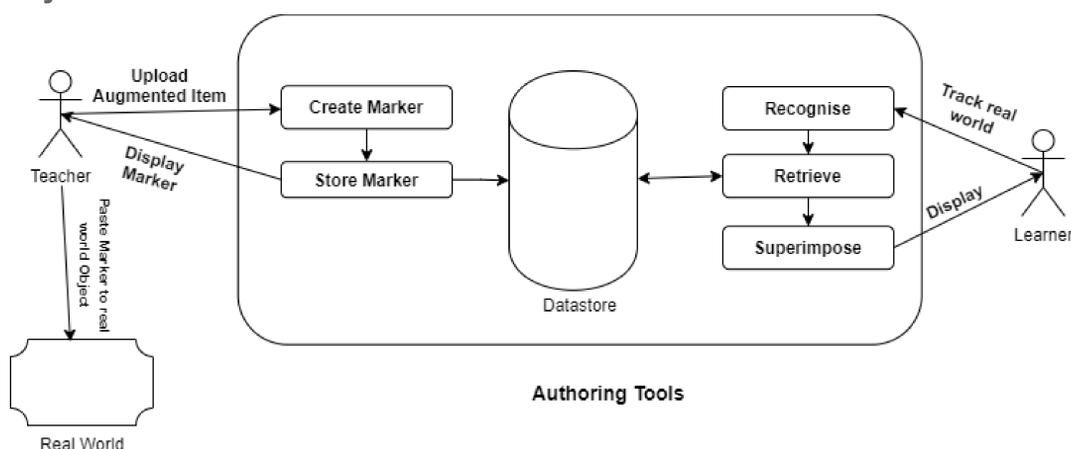
Methodology

- » Design based Research (DBR) blended with Agile Methodology in Scrumban. Within DBR, pragmatic paradigm is used allowing surveys, interviews, Design thinking, and document reviews to be used
- » Target Population: Programmers, lecturers, students and companies
- » Evolutionary prototype will be used to develop authored AR applications

Current Status & Future Work

- » Both DBR and Scrumban are iterative, hence the process can iterate back and fourth
- » The conceptual phase is complete.
- » In the next phases, we start the development phase and assessment phase using the Scrumban approach.

System Overview



Authoring Tools: System Overview based on a Use-case diagram

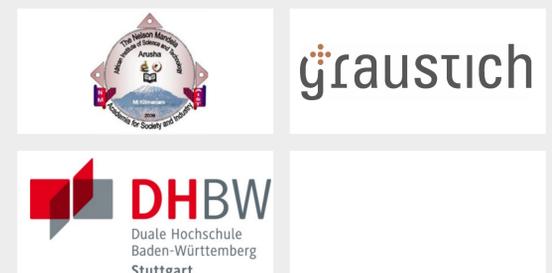
Expected Results

- » The research will contribute knowledge to the area of AR learning especially on how to apply open-source libraries and approaches to develop AR learning authoring tools.
- » The research will contribute AR source code for other similar applications
- » The results will support non-technical authors such as lecturers and partner company staff with different level of accessibility, in enabling AR applications suitable for teaching various disciplines
- » The research will increase the interaction among partner universities, DHBW and its partner organisations (Lernortkooperation)

Outlook

The AR learning authoring is very relevant for digital and cooperative learning, internationalisation and transfer of knowledge across borders
We are interested in working with the DHBW industry, organisational partners, our partner universities and colleagues within DHBW.

Cooperative Partner



Publications

- » Shidende, D. (2021). Design and implementation of accessible open-source augmented reality learning authoring tool. *Proceedings of the Doctoral Consortium of the Sixteenth European Conference on Technology Enhanced Learning (EC-TEL 2021)*, Italy, 3076, 22–30.
- » Shidende, D., Kajage, S. & Moebs, S. (2019). Towards enhancing Tour Guide Professionalism in Tanzania through a Tour Guide Portal. *African Journal of Hospitality, Tourism and Leisure*, Volume 8 (4)
- » Shidende, D., & Moebs, S. (2021). Open source, open access, open educational resources and how it affects user contribution in the development of Accessible AR Learning: An Exploratory Analysis (Unpublished– in progress)
- » Shidende, D., Sadock, J. & Moebs, S. (2021). The Role of Usability for the Success of a Web-based Tour Guide Portal for Guides in Tanzania (Unpublished – in progress)

Contact us

Project Website:
<https://www.heidenheim.dhbw.de/forschung-transfer/labore/aurelia>

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