Unlocking Hogwarts: A Case Study on School Accessibility

by **Jan Łyczakowski** and **Nicole Yeung**

To many children, school is their gateway to the world. However, not everyone has the same access to education [1]. Education is not inclusive, when children with disabilities cannot participate in school due to physical barriers and inaccessible infrastructure.

This visual case study demonstrates how school facilities can be transformed to become more accessible for people with mobility disability.

Our goal is to inspire change-makers to take actions to make school a better place for current and future generations of people with disability.

Approach

Hogwarts from the *Harry Potter* series was chosen as the school of interest - though fictional, its global acclaim allows the case study to be recognizable and relatable.

Featured facilities were identified based on existing research on school accessibility [2,3] . The spatial data, symbology, and fantasy-style maps were created in ArcGIS Pro, Illustrator, and Photoshop.

A web map application was built using *HTML*, *CSS*, and *Javascript* with *React,* where user interaction functionality and accessibility information [2,4] were added.

Map Layout

The web platform contains three layouts:

1. Overview Model (Fig. 1)
2. Surrounding Area Map
3. Floor Maps - each with two versions:
   (a) Inaccessible (Fig. 2)
   (b) Accessible (Fig. 3)

Users can toggle to compare the versions with and without accessibility features.

Conclusion

Our case study visualizes school features that serve as barriers or facilitators to people with mobility disability. We encourage further exploration on different cartographic techniques to visualize inclusive infrastructure design. We also recommend expanding the scope and scale of visualization to shed light on more facilities and other forms of disability.

Fig 1. Overview 3D model of the school of interest. This landing page helps users develop a sense of orientation for the case study.

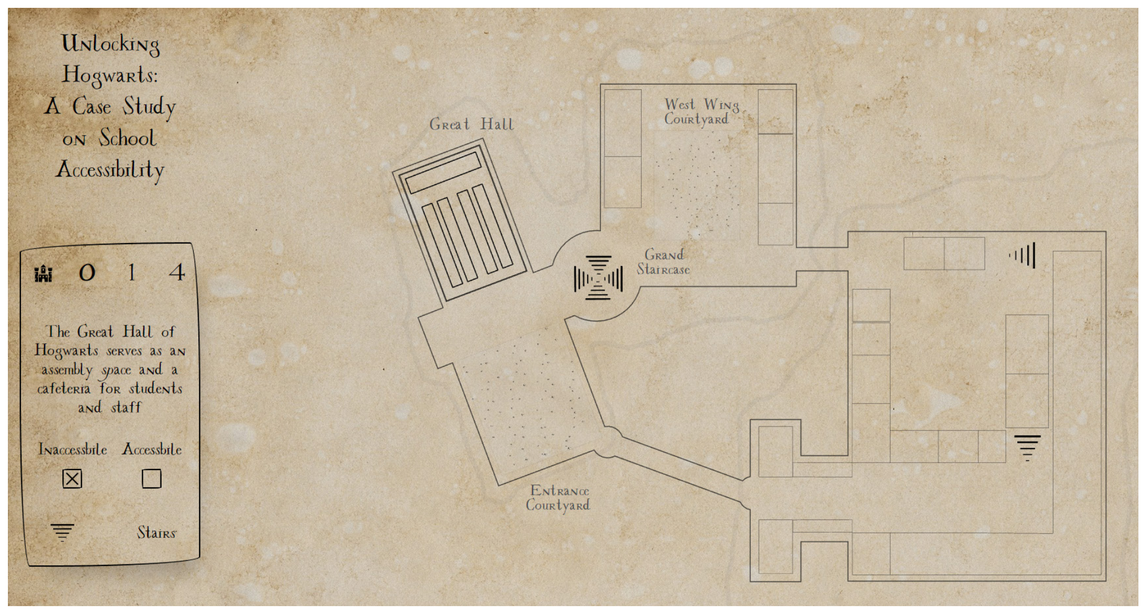

Fig 2. Floor Map: Ground Floor - original version with inaccessible infrastructure. This is a part of a floor map series that highlight three floors with representative facilities.

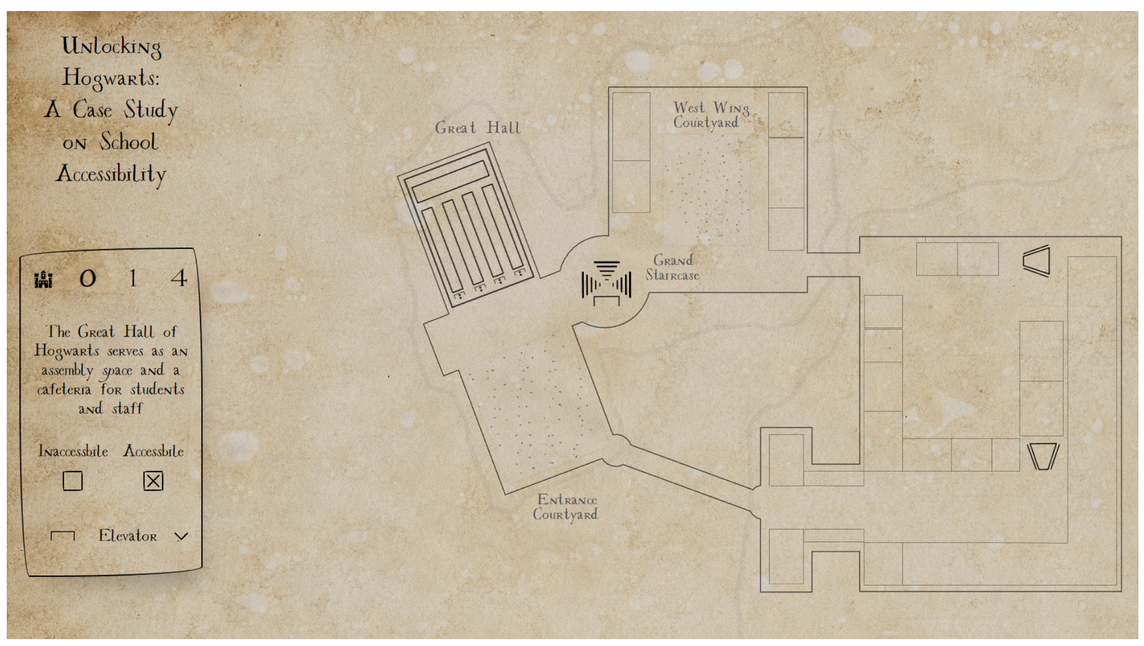

Fig 3. Floor Map: Ground Floor - transformed version with features that improve accessibility.

Imprint

Mapping Project
Winter Semester 2022/2023
Technical University of Munich

Jan Łyczakowski

Nicole Yeung

Supervisor

Juliane Cron, M.Sc.
Chair of Cartography and Visual Analytics

Keywords

Accessibility, Education, Case Study, Fantasy Map, Web Map

Link

References

[1] Disability and Development Report Realizing the Sustainable Development Goals by, for and with Persons with Disabilities. 2018. Department of Economic and Social Affairs. United Nations.

[2] Making Schools Accessible to Children with Disabilities. 2016. Government of India, Samarthyam, and United Nations Children's Fund.

[3] Approved Document M: Access to and Use of Buildings, Volume 2: Buildings other than Dwellings. 2021. Government of United Kingdom.

[4] Americans with Disabilities Act (ADA) Standards for Accessible Design. 2010. Department of Justice. United States

This project was created within the Cartography M.Sc. programme – proudly co-funded by the Erasmus+ Programme of the European Union.

Technische Universität München · TU WIEN Technische Universität Wien · Technische Universität Dresden · ITC University of Twente · Erasmus+ · cartographymaster.eu