

Advanced User Interfaces

MuseX



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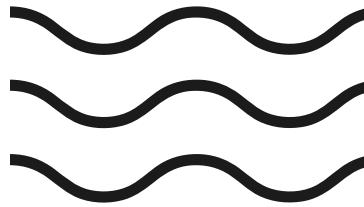




MuseX

Museum + Experience

Target Groups



Elementary school
children



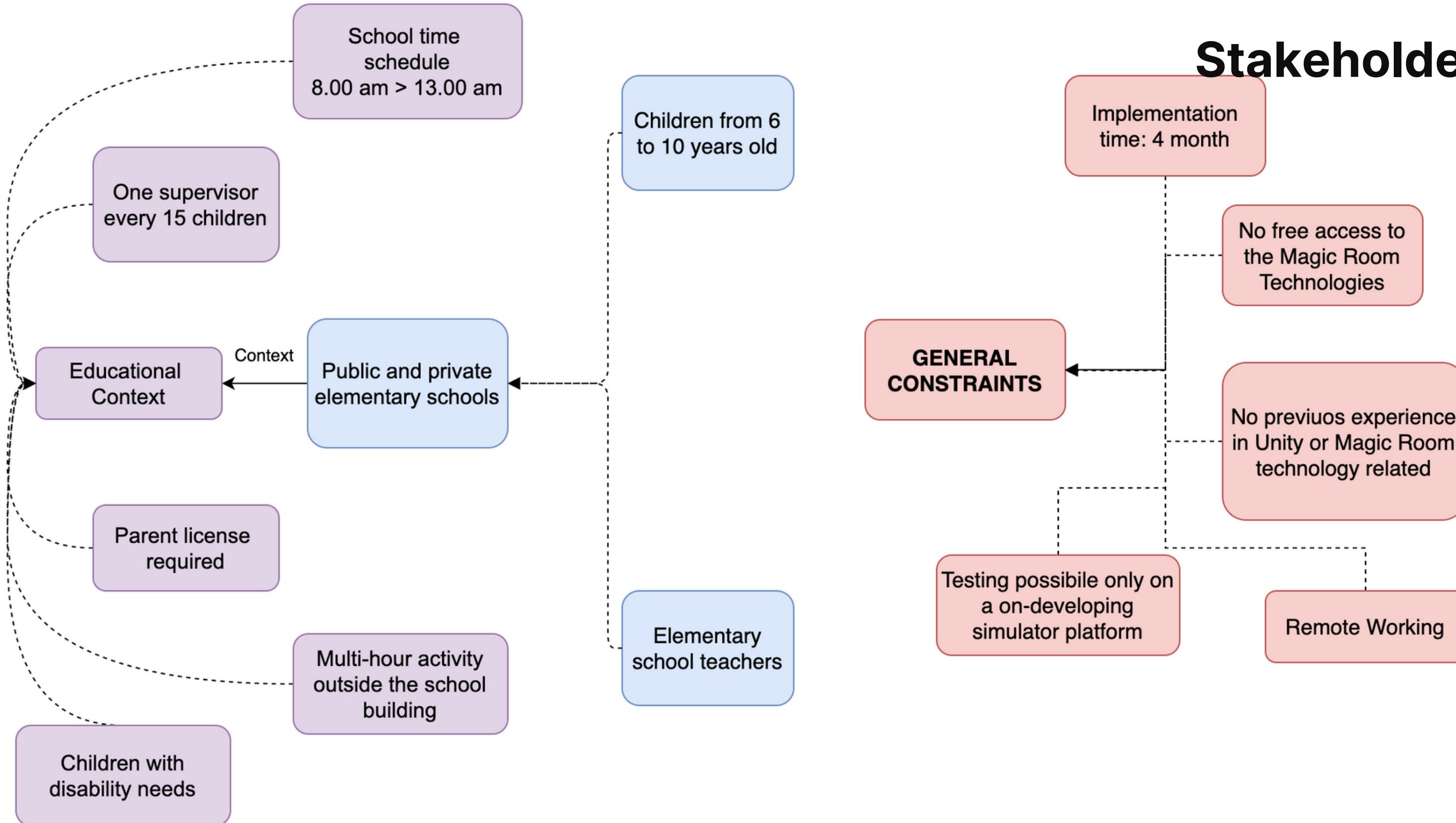
Elementary school
teachers



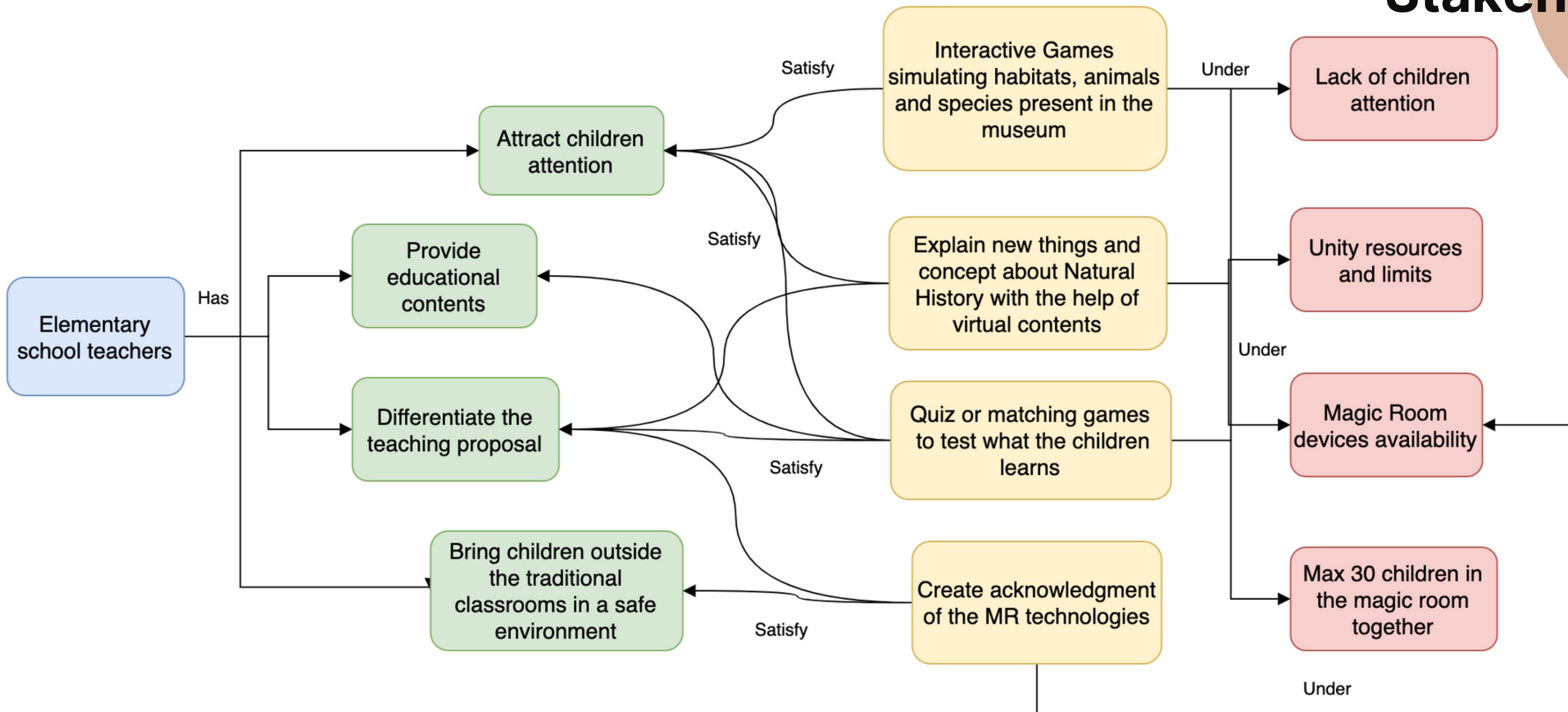
Natural History
Museums



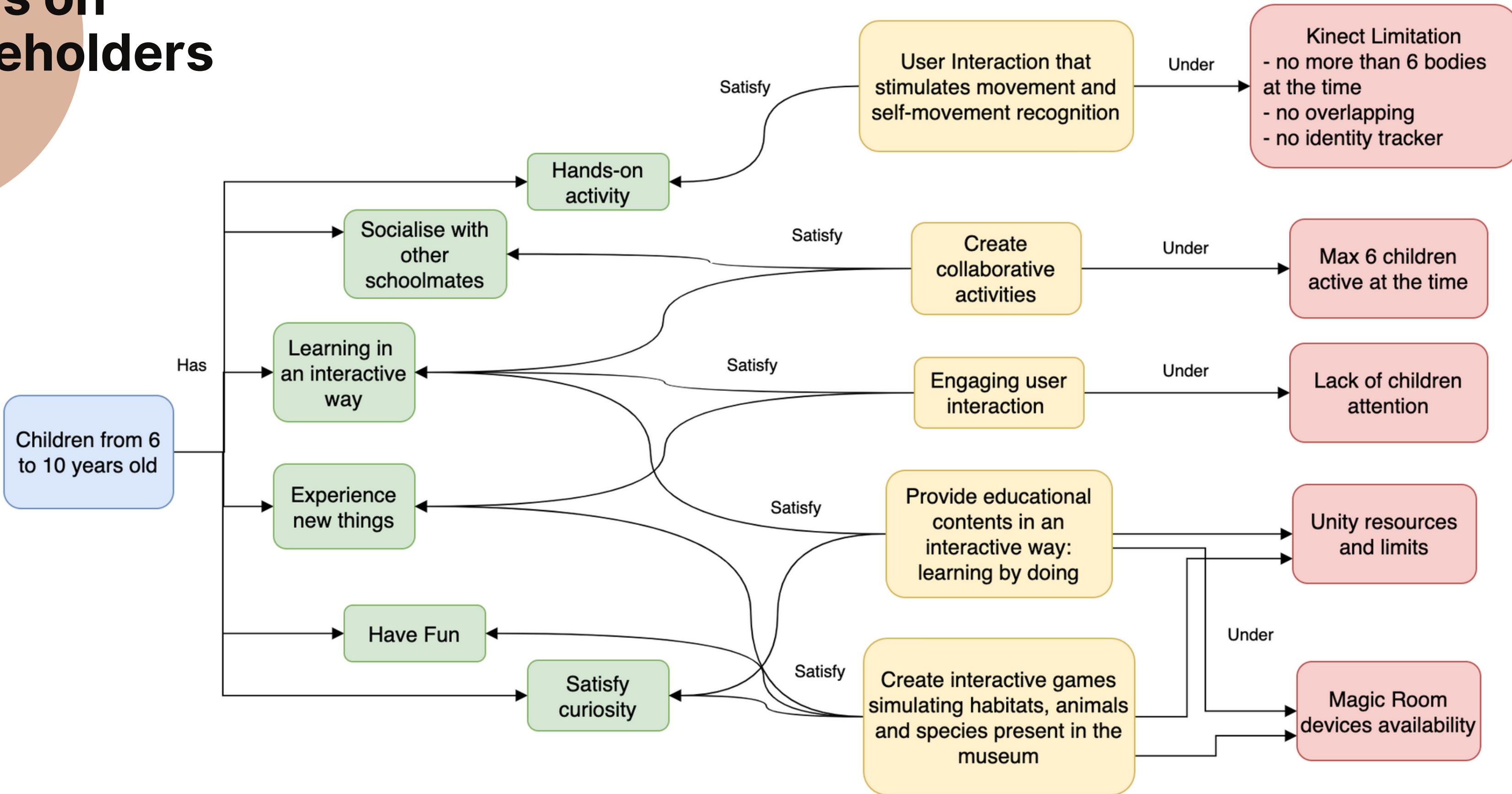
Stakeholders & general constraints



Focus on Stakeholders



Focus on Stakeholders



State of the art



British Museum

Complete virtual tour of the museum, with artifacts searchable by era, region or type.



Metropolitan Museum of Art

Entire Website section for kids (MetKids). Interactive Time machine experience.



Boston Children's Museum

Welcomes online visitors into its exhibits.
At-home activities and games.



Smitsonian National Museum

Virtual tour with follow-up activities and readings to do after the tour.



Concept

MuseX is a iMSE software

360° experience
inside a Natural
History Museum



Fully interactive

Educational
Mini-games

Multisensory

Hardware

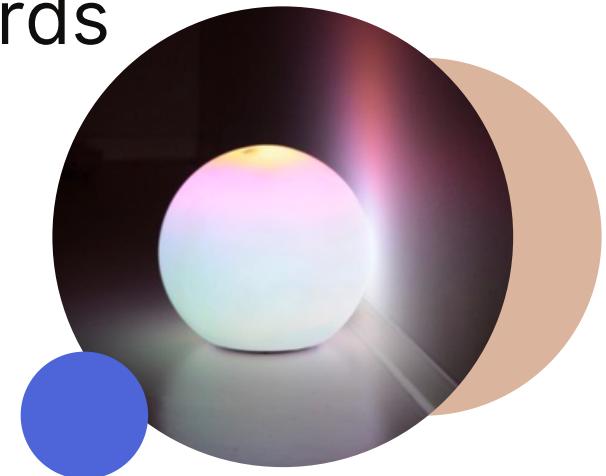
- Microsoft Kinect
- RFID reader
- Smart Lights
- Bubble Machine
- Projectors (frontal and zenithal)

Software

- Unity / C #
- Visual Studio 2019
- Adobe Photoshop



Interaction paradigm



Interaction with
smart objects

Scan
Cards



Mid-air
Gesture

Drag&Drop



Grasp

Embodied Cognition

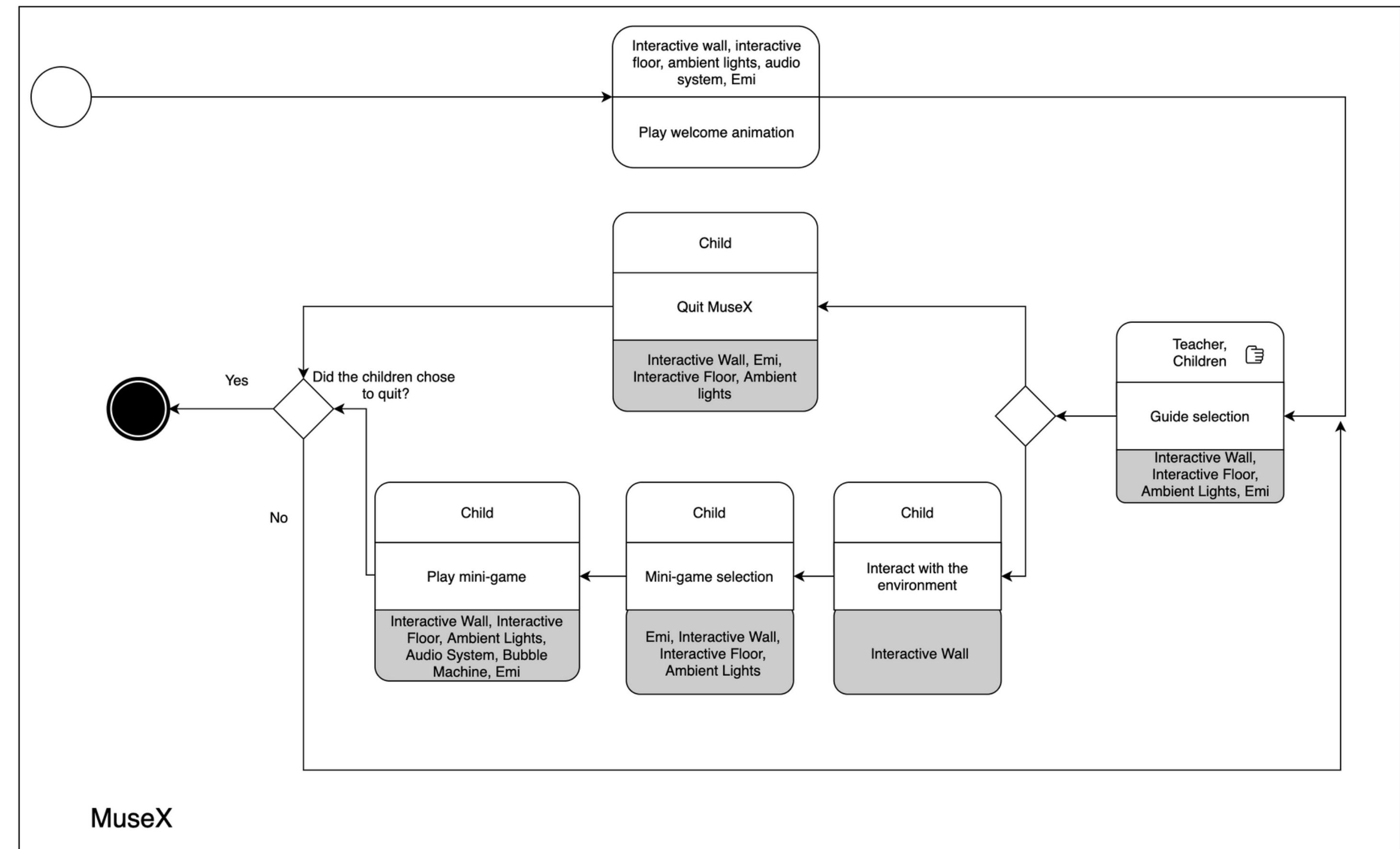


Full body
movement

Step in to
select

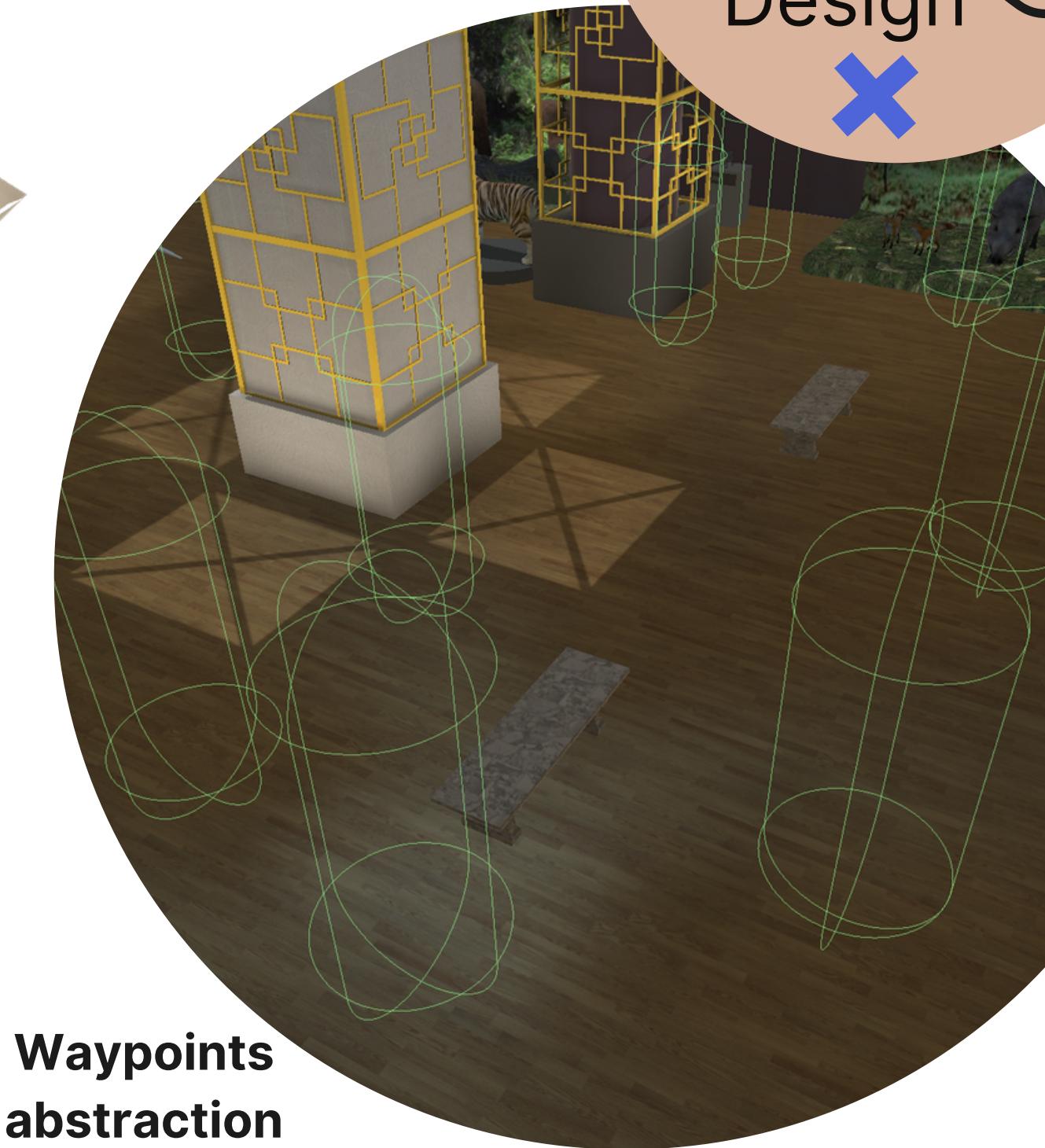
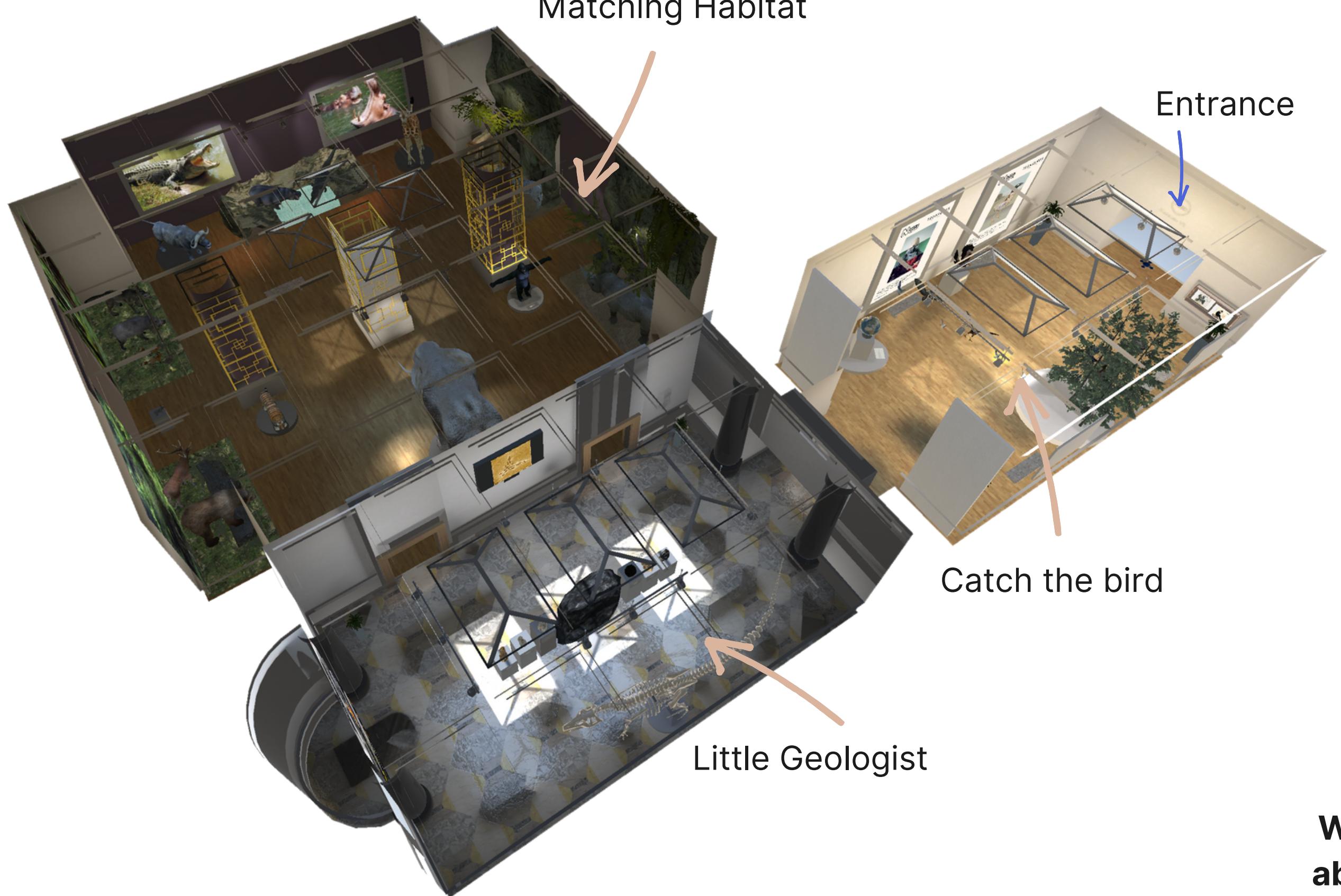
Activity Model

ISS Behavioral

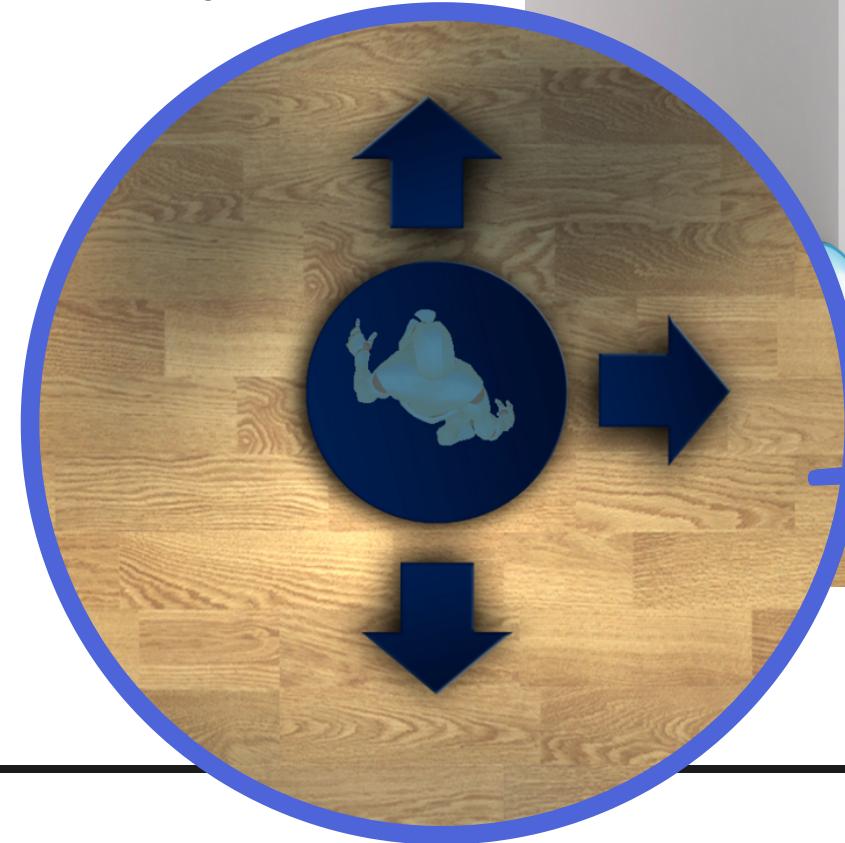


Our Museum

Internal structure & Design



Museum interactions



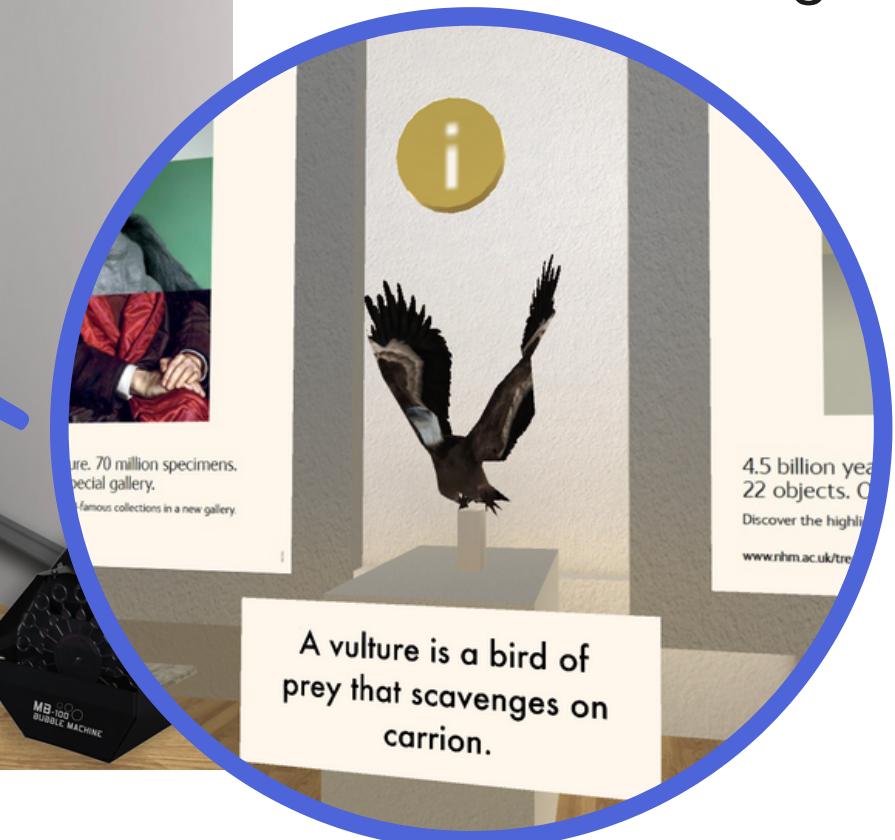
Navigation system



Mini-game entrance



Pillows of knowledge



Mini Game entrance

A star replacing one arrow indicates a mini game entrance





Catch the Bird

Step in
to select
&
Grasp





Little Geologist

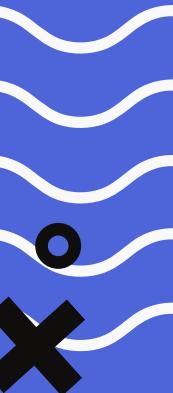
Drag&Drop

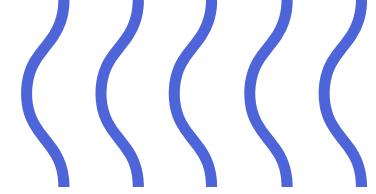




Matching the habitat

RFID
reader





Scenario 1

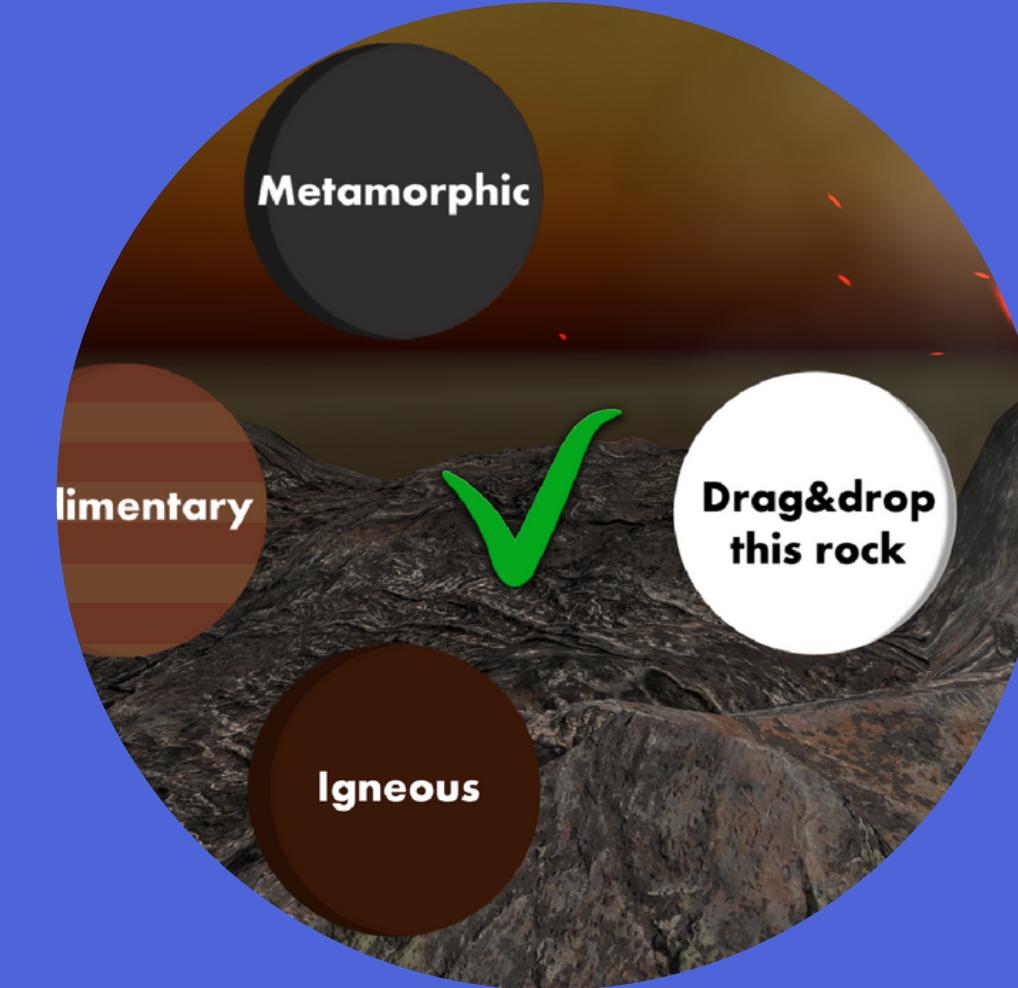
Actor: 8 y.o child from Milano



Learning in an interactive way
& socializing with schoolmates

Scenario 2

Actor: 24 y.o. elementary school teacher



Test children understanding of concept,
differentiating the teaching proposal

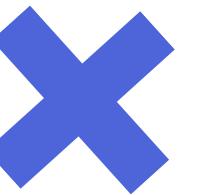


Value Proposition

A smart space software aimed at :
providing educational contents
developing collateral competences and soft skills



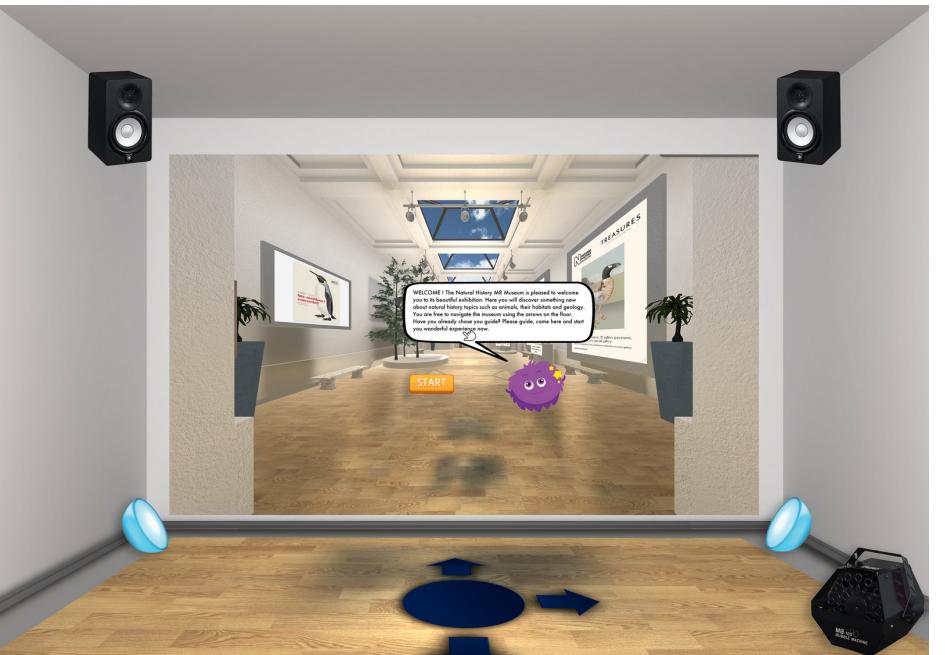
Competitors



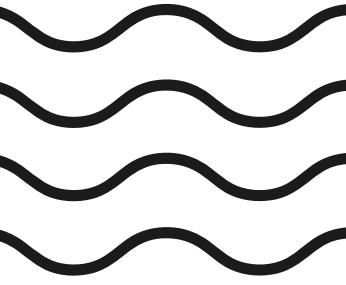
**Virtual
Museums Tours**



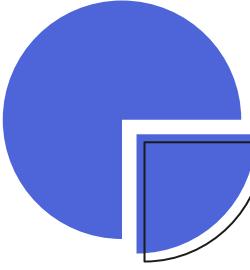
MuseX



**VR based app and
interactive games**



Future Work - Short term



Feeding the animals

Smart sphere + Teamwork + Kinect



Puzzle Game

Drag & Drop + Competition

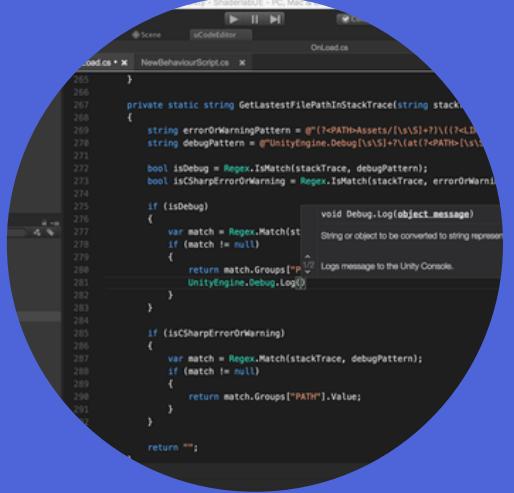
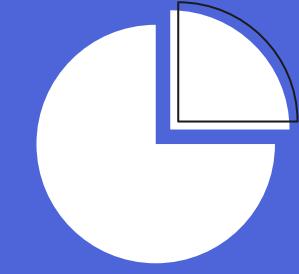


I believe I can fly

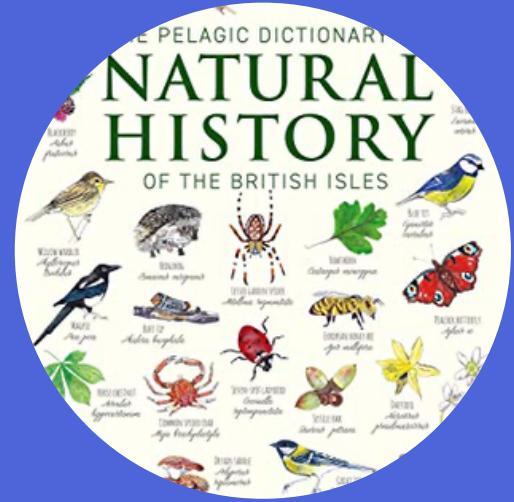
Full Body Movement

Testing the software in the Magic Room

Future Work Medium term



Implement brand new mini-games

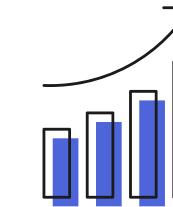


Adding more educational contents such as video or interactive lessons

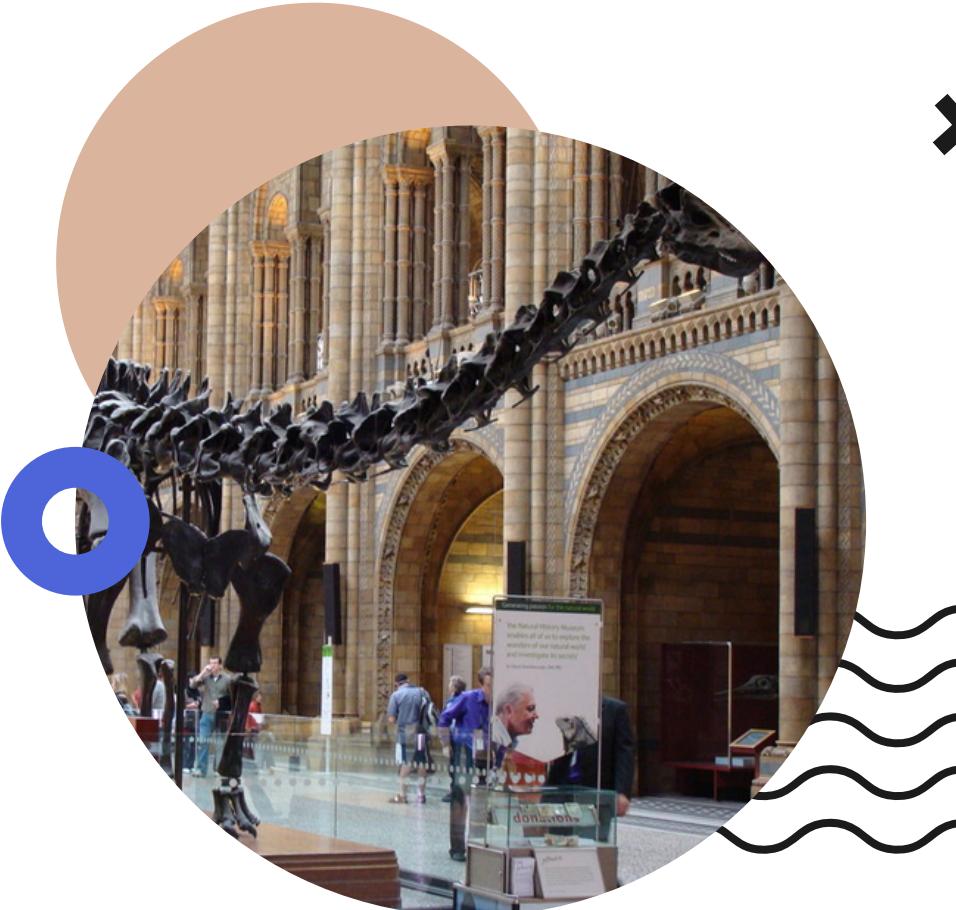


Modify the existing mini-games to make them parametric

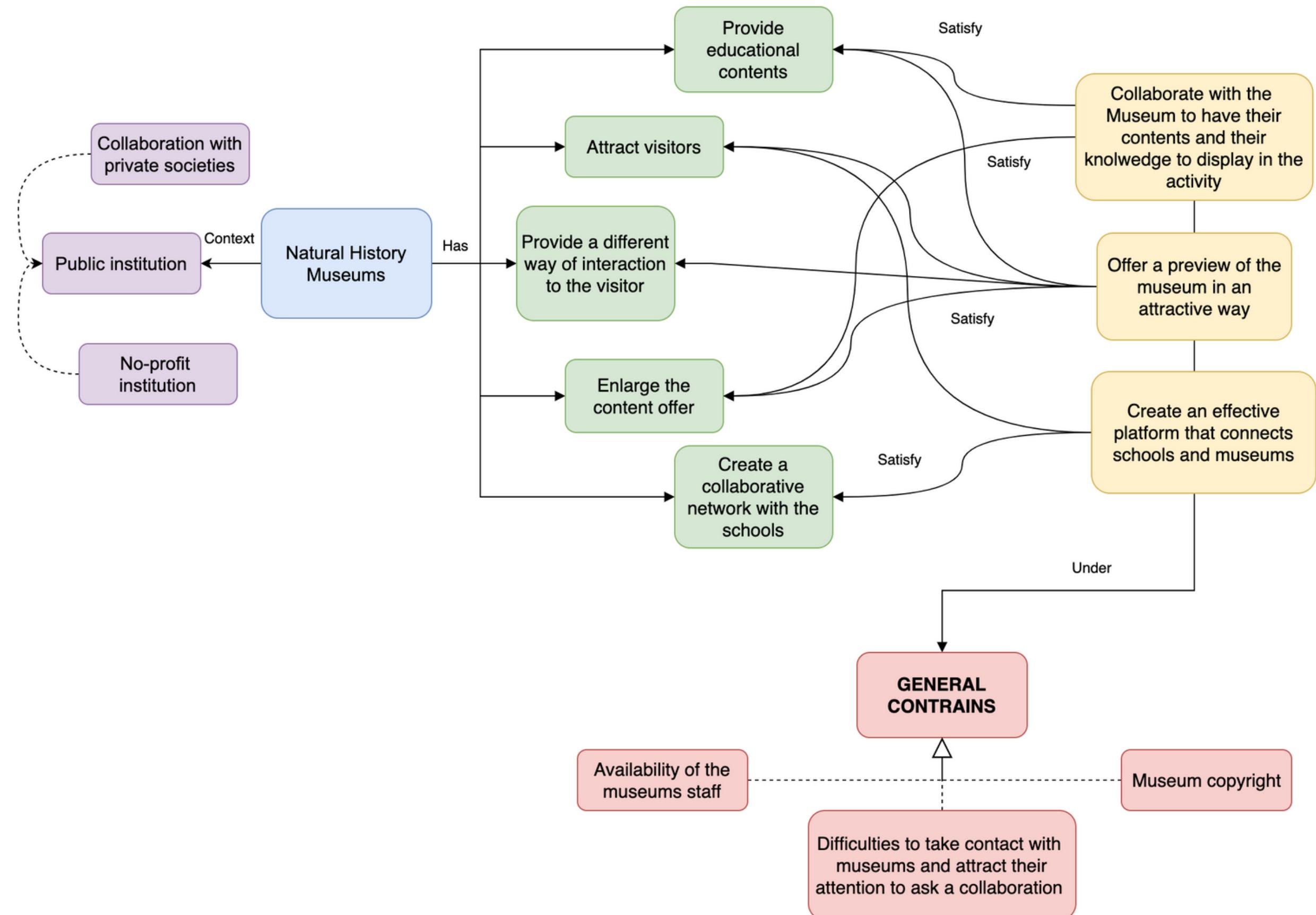
Future Work Long Term



Collaborate with a real museum



✗



**Thanks for
your
attention**

Which are the limits of our solution ?

- Spaces required
- Costs
- No special activities for children with disability
- Max 6 children at the time
- Educational Contents to be improved
- Untested software - inside the MR

Why the Magic Room?

Other types of virtual museum tours do not offers interaction paradigm that a iMSE can offer. Providing a 360° experience can only be done using full-body movement recognition and visual and audible feedbacks. Thanks to the Magic Room, it is possible to provide an immersive experience to the child, as if he was inside an actual museum, but enriched with educational and interactive contents such as mini-games.

What can the teacher do during the activity?

- Stop the activity at their disposal
- Select a mini-game directly
- Move around the museum by "teleportation"
- Select a educational content to be shown

Which educational contents are there in the activity?

- Pillows of knowledge
- Learn by doing
- Previous knowledge required
- More in future work