



Object animation using Augmented Reality for Faraday Museum

João Henriques

Agenda

- Introduction & Objectives
- Related Work (Quick Review)
- Solution Proposal
- Storyboard 1
- Storyboard 2
- Schedule
- Evaluation
- Conclusion



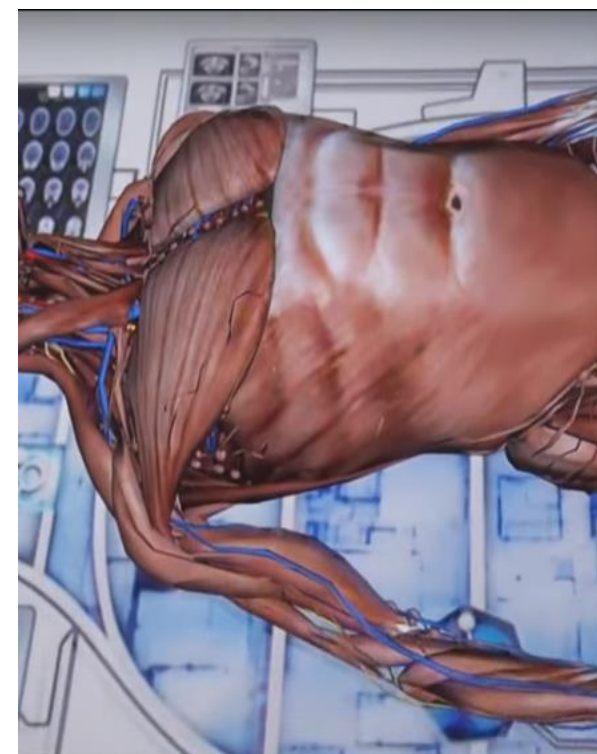
Introduction & Objectives

Introduction & Objectives

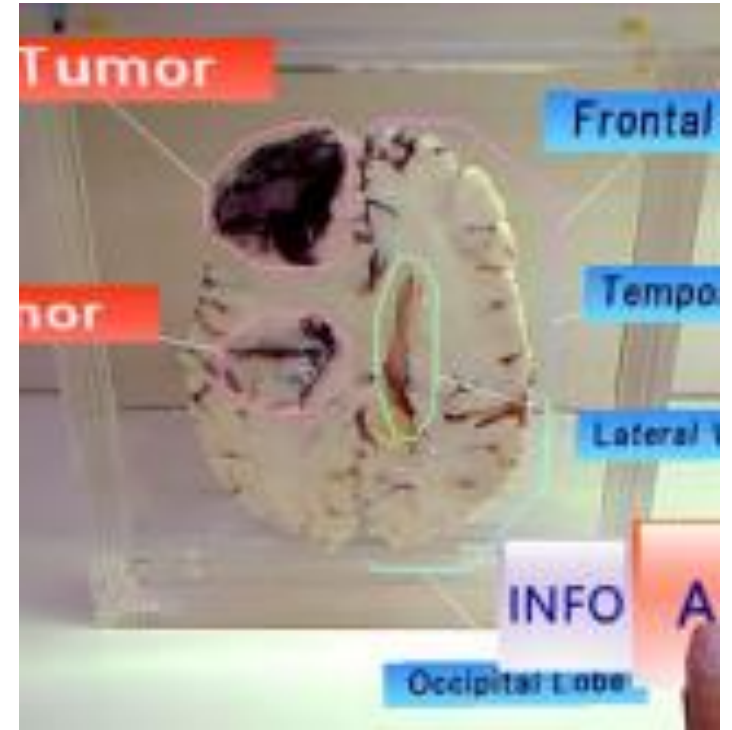
- Improve the visiting experience of the museum.
 - Animate a new object from the Faraday Museum.
 - Evaluate the work done so far by testing with users, changing any interaction problems found.



Related Work



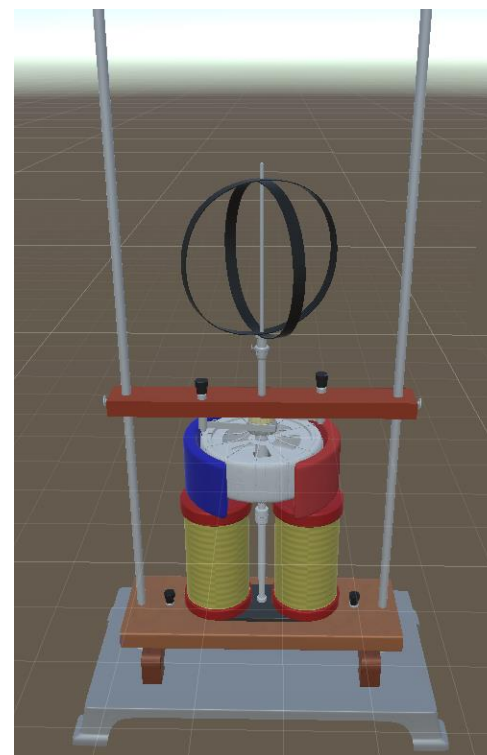
AR in the world



AR in museums



Extended Play at Faraday Museum by João Barreto



Extended Play at Faraday Museum by
Luís Nunes

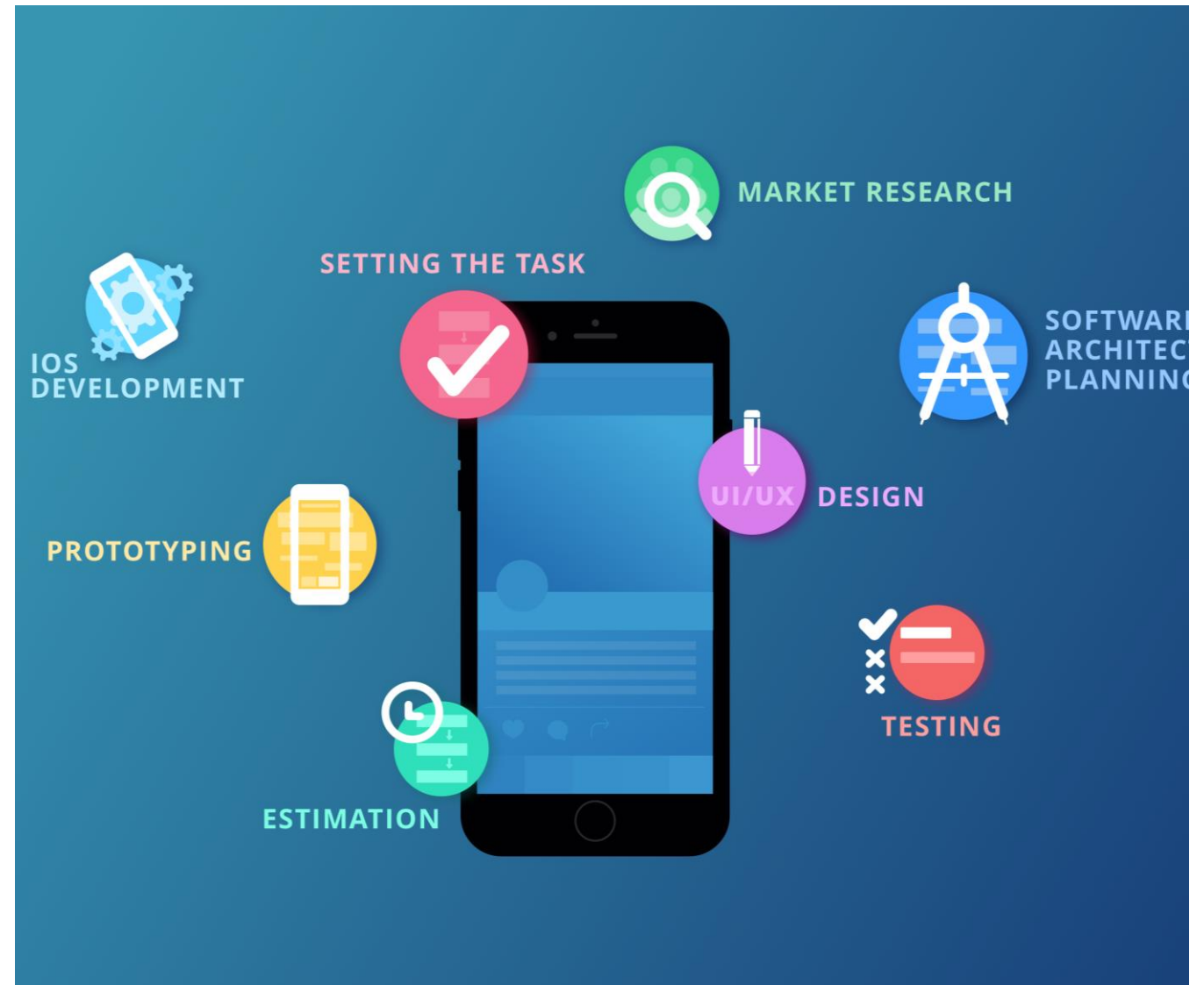
Educational AR



User Experience in AR

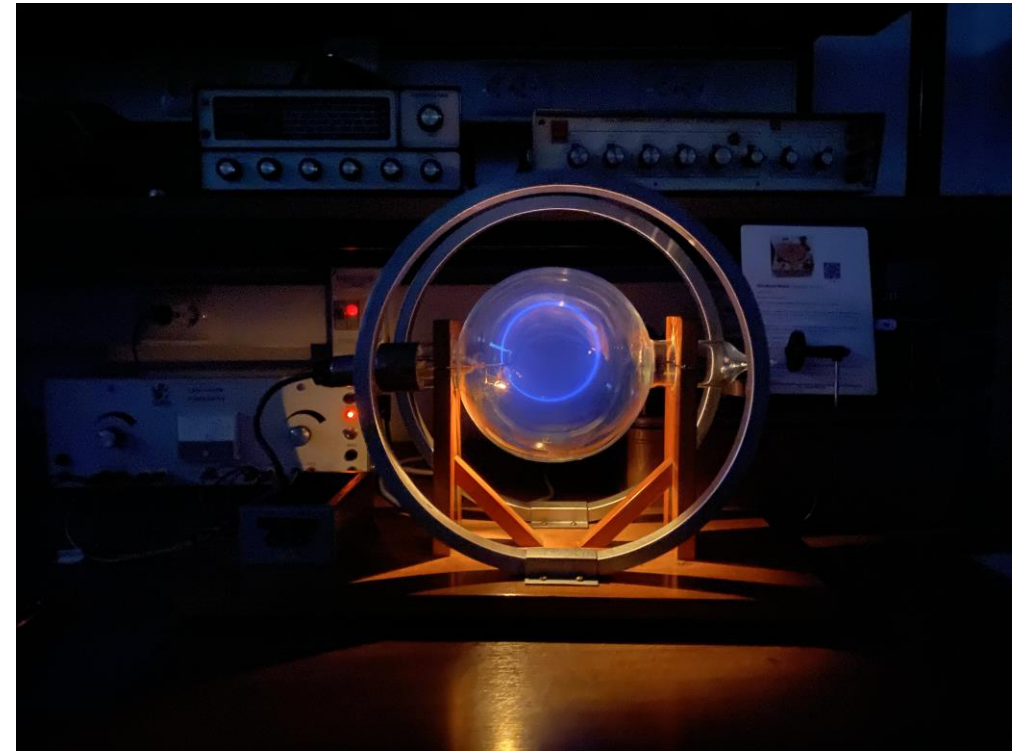


Mobile Application



The slide features two large teal geometric shapes. On the left, a teal triangle points towards the center. On the right, a teal trapezoid is positioned, also pointing towards the center. The text 'Solution Proposal' is centered between these two shapes.

Solution Proposal



The Cathode Ray Object

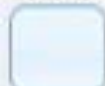
controls:

acceleration voltage V_a



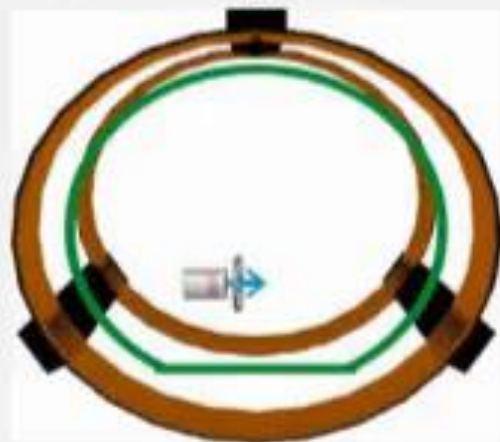
100 V

current / through coils



0.00 A

schematic diagram:

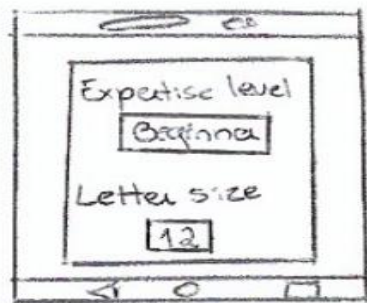


Our application

- Interact with the object
 - Change the values of the object
- Interact with the app
 - Receiving Objectives, hints and explanations
 - Augment the reality by showing the electric and magnetic field
 - Changing the values of the object
- Features:
 - Letter size customization
 - Expertise level customization
 - Share it on social media



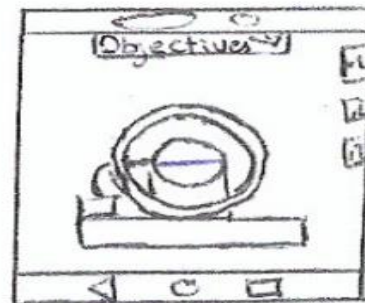
Technical aspects



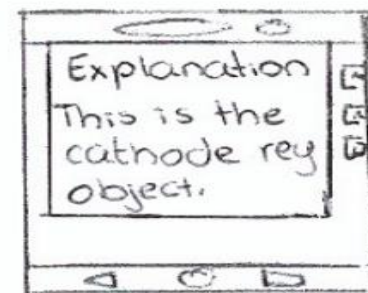
The user defines his expertise level and letter size.



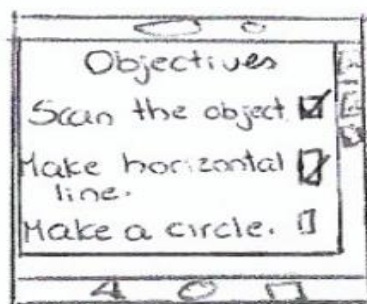
The user scans the object.



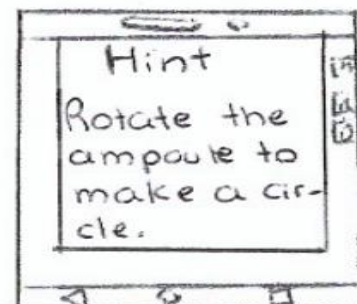
The object appears in the app.



An explanation about the object appears.



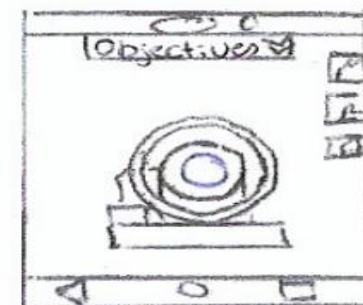
The user presses the button to see the objectives.



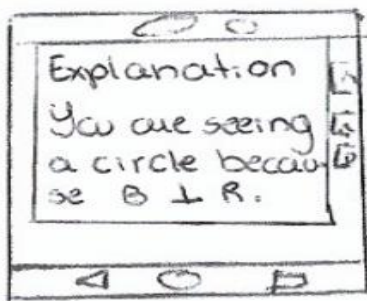
The user closes the objectives and appears a hint.



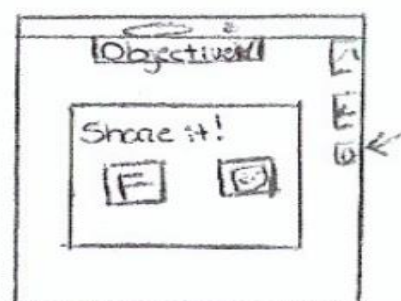
The user rotates the ampoule until it appears a circle.



The circle appears in the application.

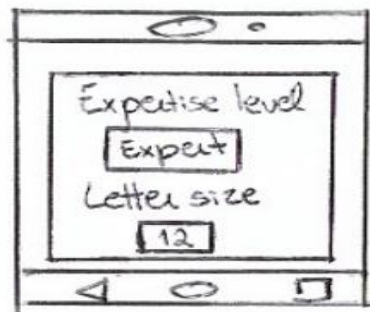


The user accomplished the objectives. So, appears an explanation.



The user takes a quick snapshot and share it on social media.

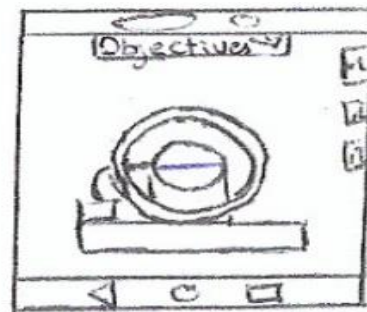
information passed through bluetooth



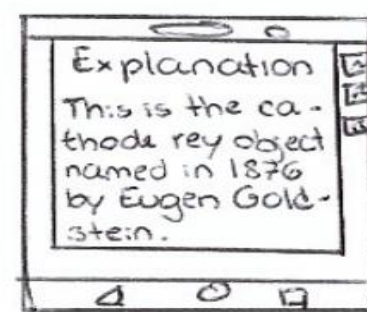
The user defines his expertise level and letter size.



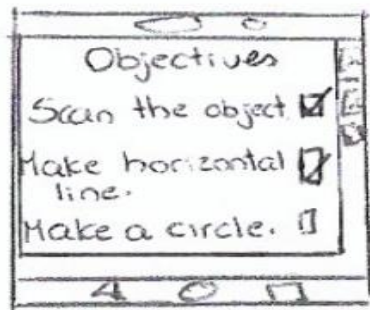
The user scans the object.



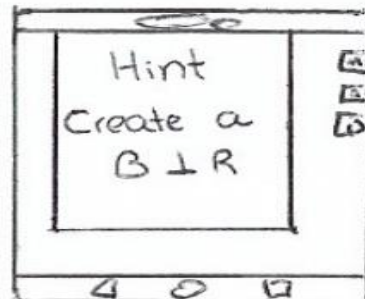
The object appears in the app.



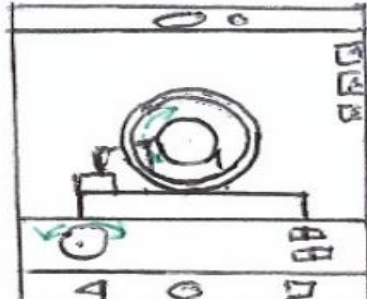
An explanation about the object appears.



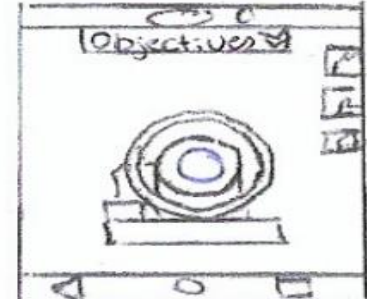
The user hits the button to see the objectives.



The user closes the objectives and appears a hint.

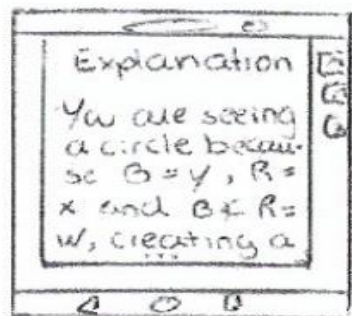


The user rotates the ampoule in the application.

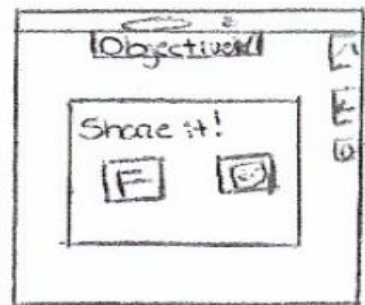


The circle appears in the application.

information ^{*} passed through bluetooth to the object



The user accomplished the objectives, so, appears an explanation.



The user takes a quick snapshot and share it on social media.



Luís Nunes Work Evaluation

Field tests

- Do the visitors use the application? If yes, for how long?
- In each part they spend more time?
- Do the users reach the end of the experience or they give up? If they give up, where?



Schedule

Schedule



Evaluation

Research Questions

- **RQ1:** Can the user understand that the e-bean changes with the magnetic field?
- **RQ2:** Can the user understand that the magnetic field is generated by electric coils?
- **RQ3:** Can the user understand why the shape of the e-bean changes?
- **RQ4:** What type of interaction (by the device or in the object) the user prefers?
- **RQ5:** What was the most difficult part of the application, and the most frustrating one?
- **RQ6:** What was level of pleasure when using the application?

User tests format

- **Group one:** Only use Cathode ray object + survey
- **Group two:** Use the Cathode ray object and AR application, the objectives will first request the user to interact with the object by changing the values in the object, and only after that, changing the value in the application + survey
- **Group three:** Use the Cathode ray object and AR application, the objectives will first request the user to interact with the object by changing the values in the application, and only after that, to change the values in the object + survey

The slide features two large teal geometric shapes. On the left, a teal triangle points towards the center. On the right, a teal trapezoid is positioned, also pointing towards the center. The word "Conclusion" is centered between these two shapes.

Conclusion

Conclusion

- AR has a positive impact in museums
- AR is able to create positive learning experience

“We believe augmented reality is going to change the way we use technology forever. We’re already seeing things that will transform the way you work, play, connect and learn.” —Tim Cook

João Henriques