IBM

Interactive Model of a Quantum Computer

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Introduction

Our goal was to make an interactable model of a quantum computer explorable in a VR environment. We wanted to create a way to explore and understand all the physical parts that compose such a complex machine.

We decided to use Unity as our game engine since we already had experience with it, and it is easy to use. This way, you can get up close and personal with the virtual hardware and truly understand what makes up these fascinating machines.
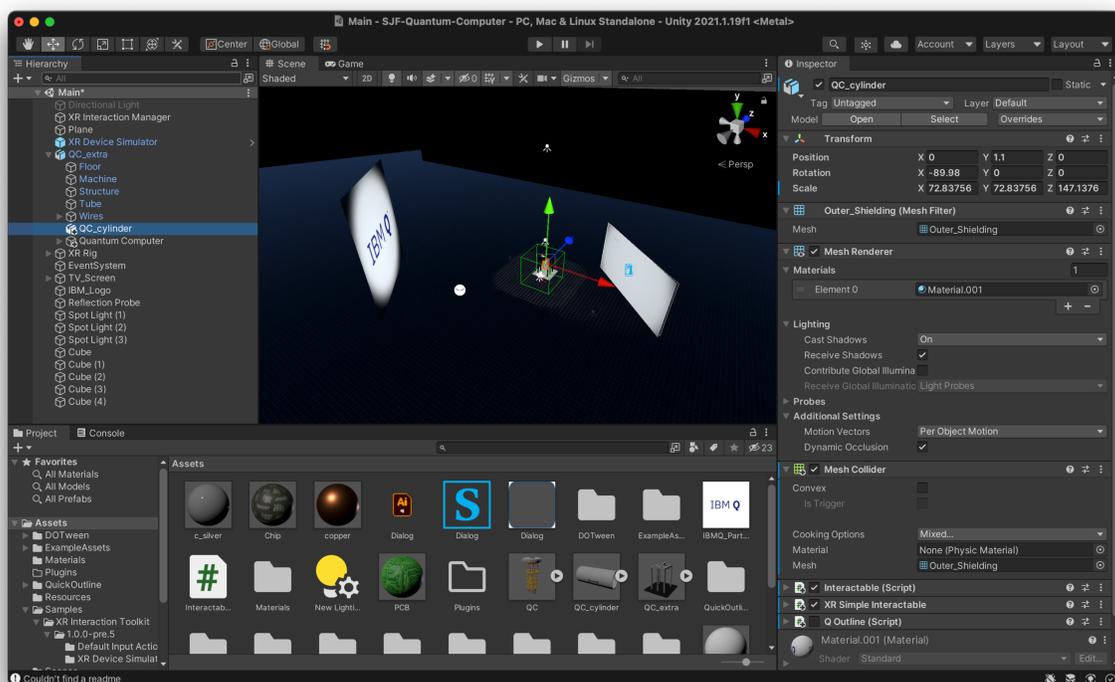
The Unity Game Engline that we used to build our VR-Experience.

Conclusion

We found it quite easy to create such an experience and we are certain that the usability will only get better with time. In the future, many companies will try to use this technology to show customers their products. We hope this sets an example and that companies will use this technology to educate others.

We learned a lot of things about VR, but also about Quantum Computers and how they work. This can be quite confusing, as they operate in a quantum world, which is fundamentally different than our classical world. This means they don't have a defined state until you measure them and allows them to be as powerful as they are.
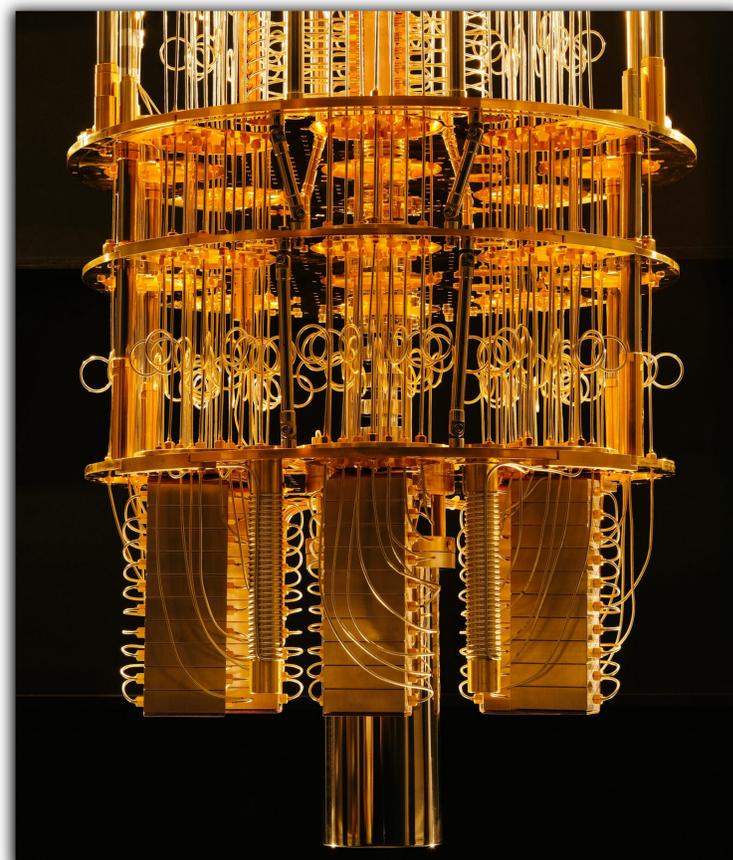
A real quantum computer built by IBM.
Image courtesy of higgs.com

Our Workflow & tools

During the week, we started by setting up the software required for the project. We received a 3D model of the quantum computer, which we complemented and modified in Blender. We were not able to get our hands on a VR headset, so we used a simulator plugin in Unity, a game engine.

We then implemented a way for the player to interact with the computer and see the relevant information.

At the end of the week, we got the chance to go to the lab, where we could test our demo and see a real quantum computer.
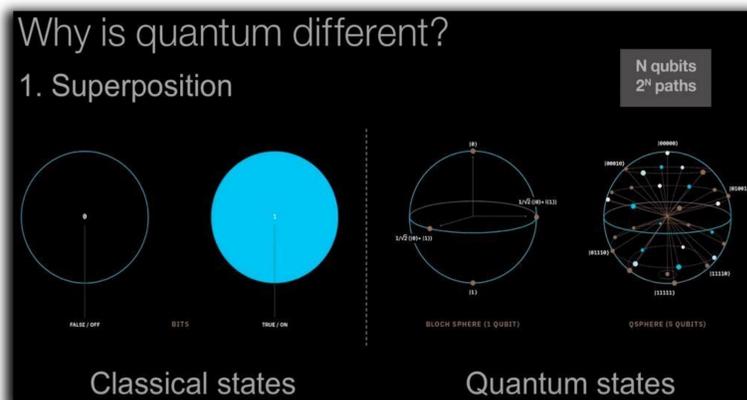
A diagram illustrating the difference between a normal bit and a qubit.
Image courtesy of power-and-beyond.com

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