CastGram

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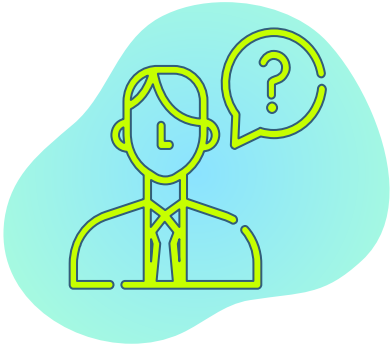
01
Project Presentation

THE PROBLEM

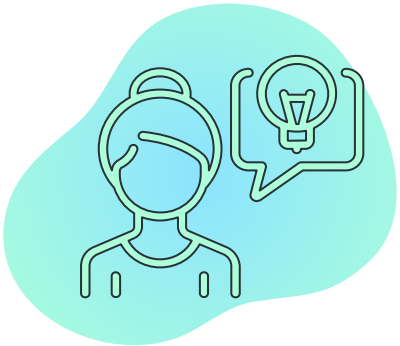


Problem

During the research for an Idea we found this video that showed us that statues were originally colored.

We investigated a little bit and found that very few people know that the statues were originally colored...

THE SOLUTION



Solution

We create an interactive visit inside the museum using holograms and the IoT.

H. Y 4 months ago

Colorization of statues should be an augmented reality app for every museum.

3K REPLY

View 10 replies

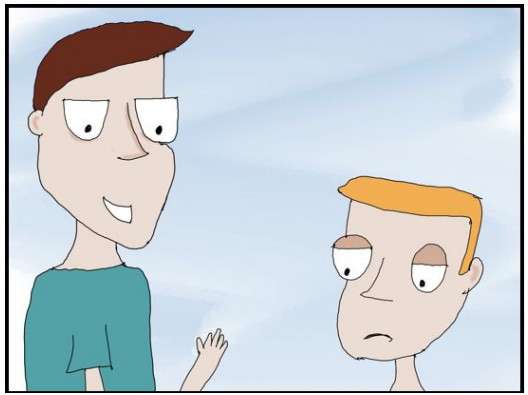
Arif 5 months ago

Imagine living in that beautifully colored world

1.3K REPLY

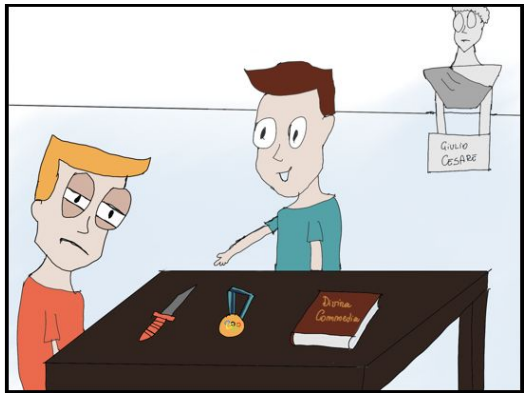
View 42 replies

EXPLANATION



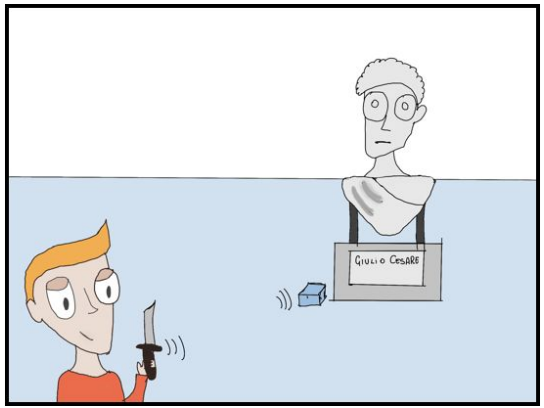
Mario wants to bring his child to the museum but his son is not enthusiast about it

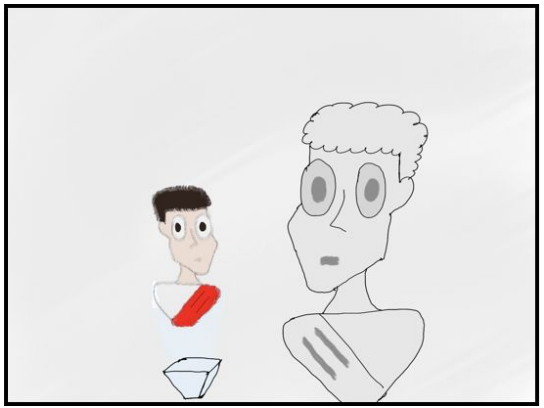
They discover that inside the museum there is a new technology

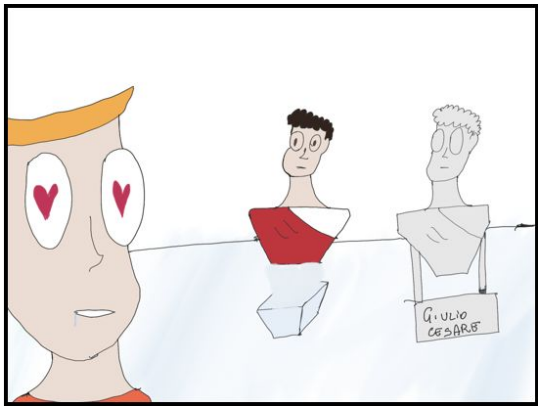


When a visitor enters in a room he will find a set of objects that can be related to a certain statue.

EXPLANATION







The visitor chooses the object that is relevant to a specific statue and reaches the cast with such object. The object will activate the board that will show an Hologram of the statue colorized.

02
EVALUATION

USER EXPERIENCE - INTERVIEWS

User 2

“Yes, I'd love to see the statues as they were originally”.

User 3

“I think that holograms would greatly enrich the visit”.

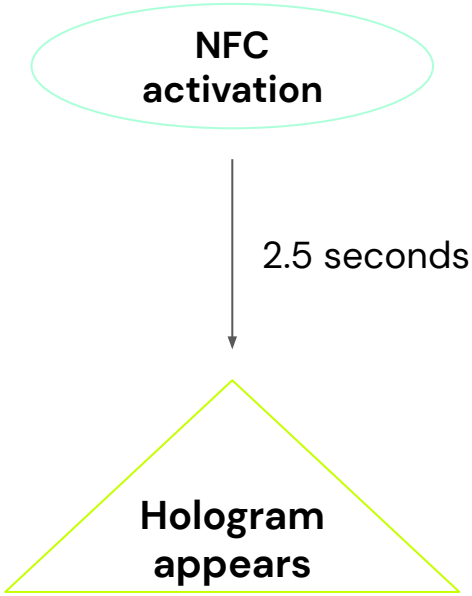
User 1

“I didn't know the statues were originally colored...”.

User 4

“I love riddles.”

TECHNICAL POINT OF VIEW - Latency



TECHNICAL POINT OF VIEW - Costs

Real system

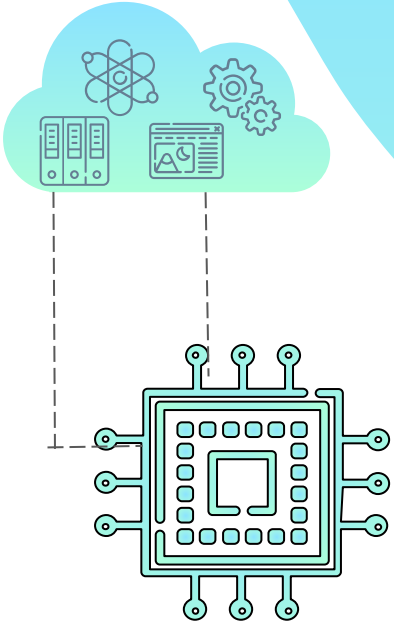
195€

Board	55€
NFC module	16€
WiFi module	21€
Screen and HDMI adapter	83€
NFC stickers	10€
Statue objects	Approx 15€
AWS monthly cost	< 1€

Our simulation

132€

Board with NFC and WiFi	57€
NFC stickers	10€
Raspberry Pi 1	30€
Monitor 5” with HDMI	35€



03 Architecture

TECHNOLOGY USED

AWS IoT

We use the Amazon Web Services as MQTT broker

STM32 Board

The STM32 Board is the IoT central element

NFC

The NFC sensor will activate the board and the hologram will show up

Mbed OS

The operative system for the STM32 board

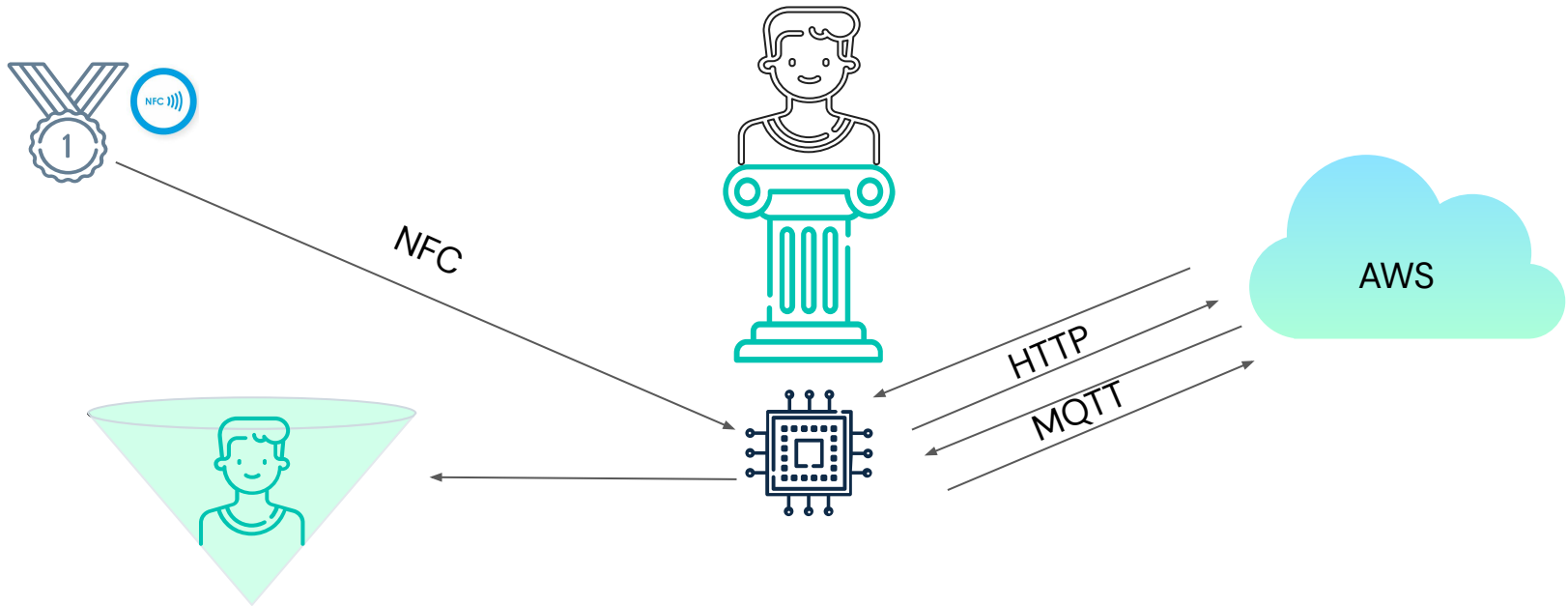
MQTT

The protocol that that transports messages between devices

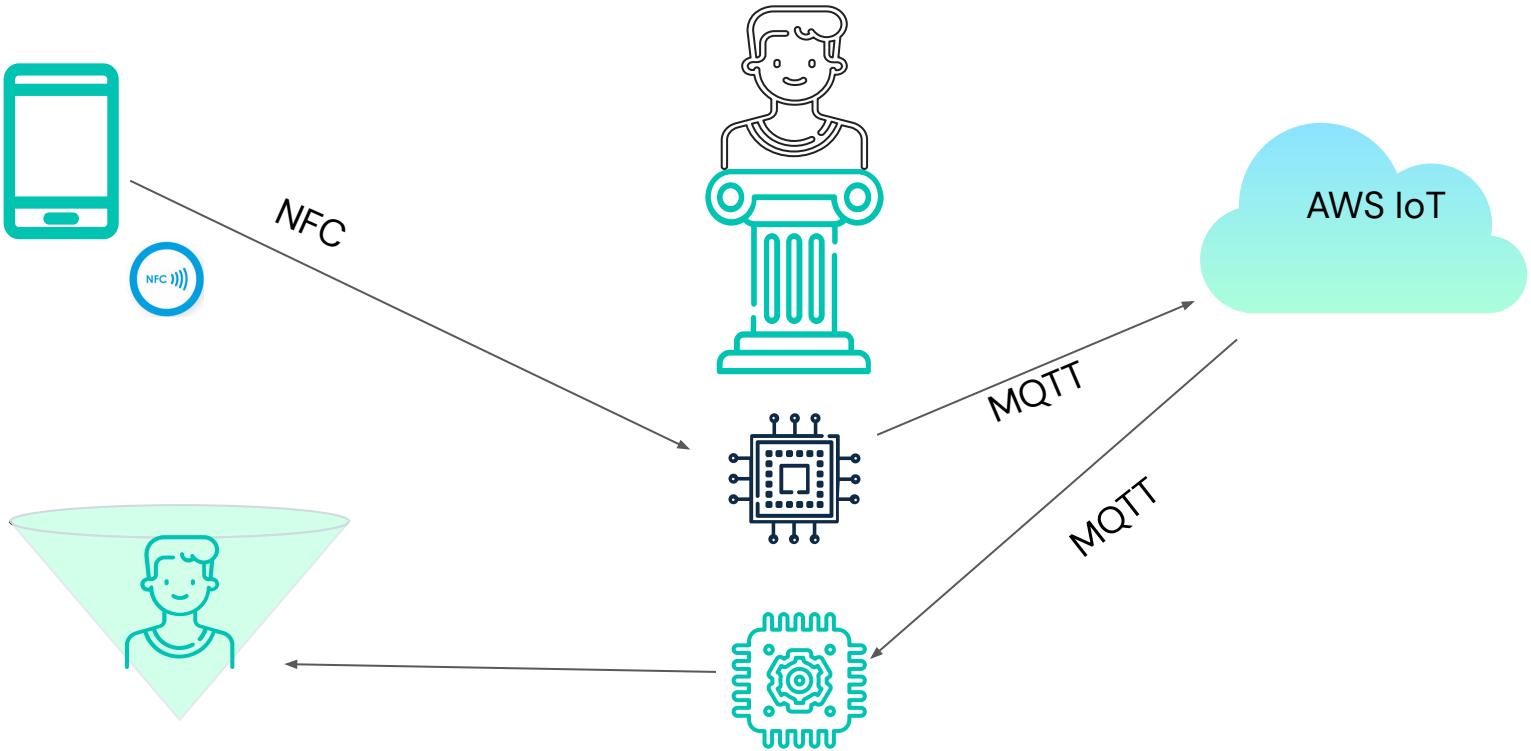
Wi-Fi

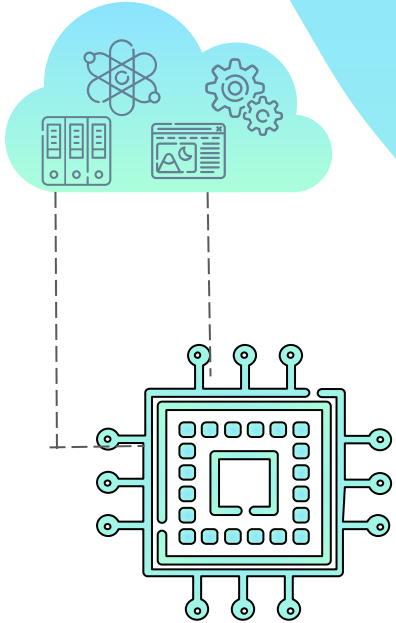
We use Wi-Fi to connect the board to the internet

Architecture Schema



Evaluation Architecture



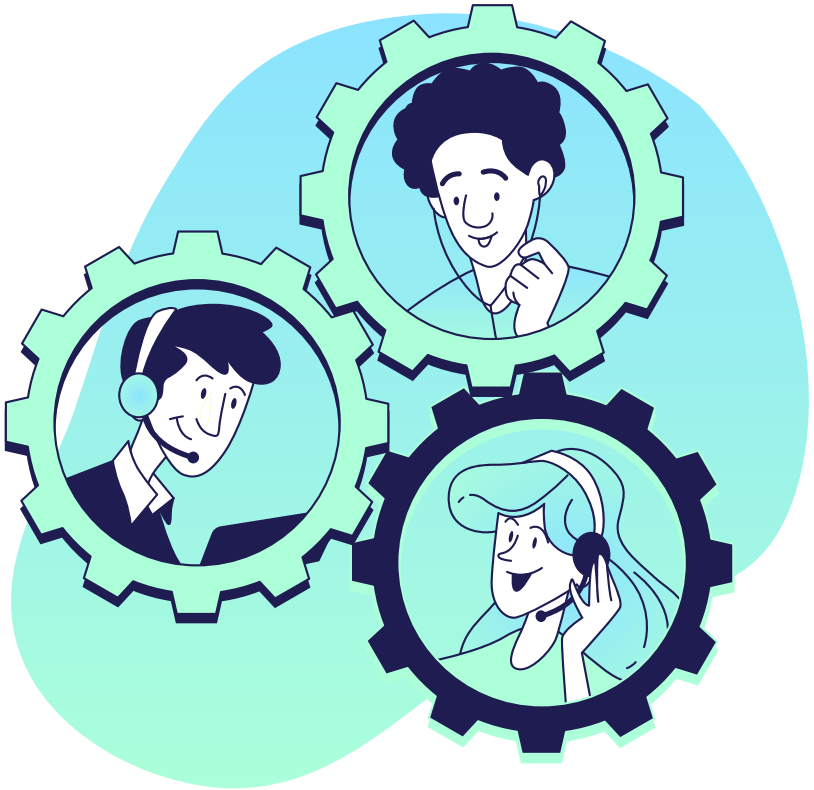


Video Demo

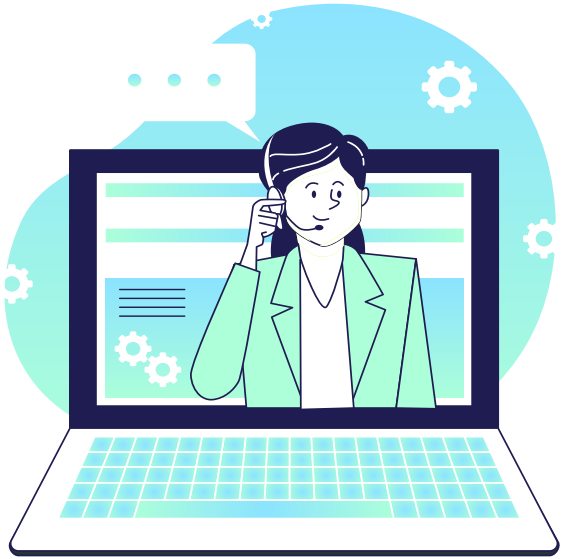
04
What do we have now

Technical part

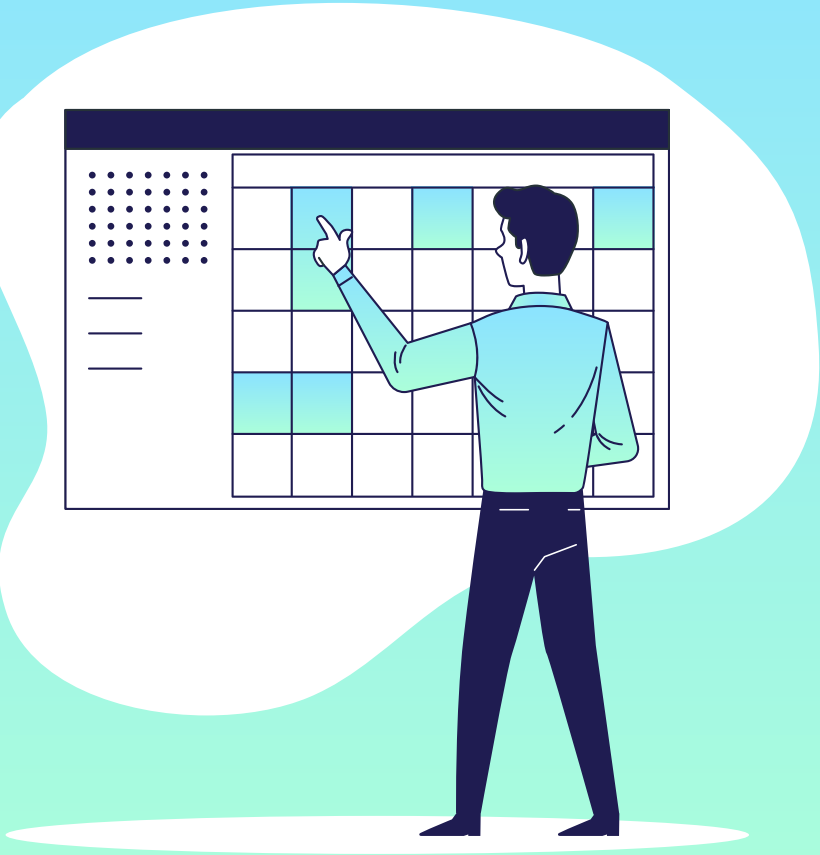
- Cloud infrastructure on AWS
- Mbed OS code for the NFC module and for the Wi-Fi module
- MQTT communication between the board and the cloud
- Code to display the image on the screen
- Structure to show the hologram
- Image of a coloured statue



Evaluations



- Calculation of the costs of the simulation
- Calculation of the costs of the real system
- Calculation of the "image" latency of the system (Time from NFC signal to hologram)
- Interviews with users



05
What we will do

What we plan to do

For the third delivery we will

- Set up the DB to maintain the statistics about the statues interaction
- Create an Accessible dashboard to display this data to the museum curators
- Increment the number of available holograms

The future Evaluation

The evaluation that we are going to do are:

- Test the entire system with functioning prototype
- Calculation of the "cloud" latency of the system (Time to send data to the cloud and show them in the dashboard)
- Improve the latency of the image.

OUR PROCESS

Step 1

Create more Images

Step 2

Set up the database

Step 3

Create a dashboard

Step 4

Test the final product

THANKS!

A special thank to Elisa L'Angiocola

GitHub Link