Fabrication Lab 2023

FaceGuard

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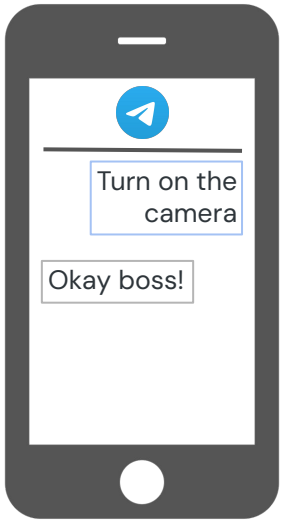
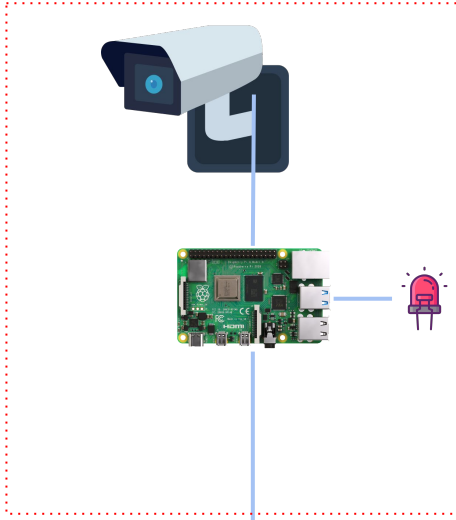
python-telegram-bot

Send a message to activate the facial recognition.



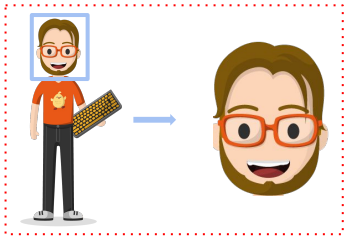
container 1



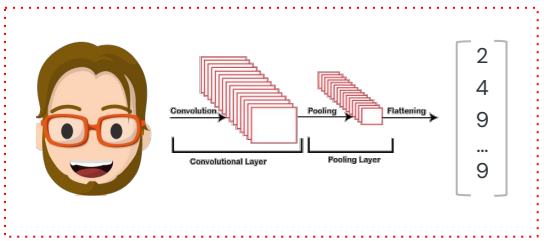
MQTT

A led provides visual feedback on system status.

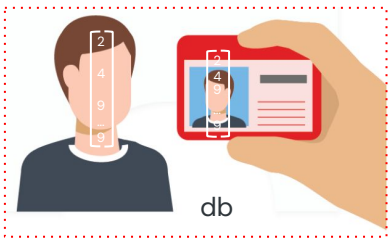
container 2



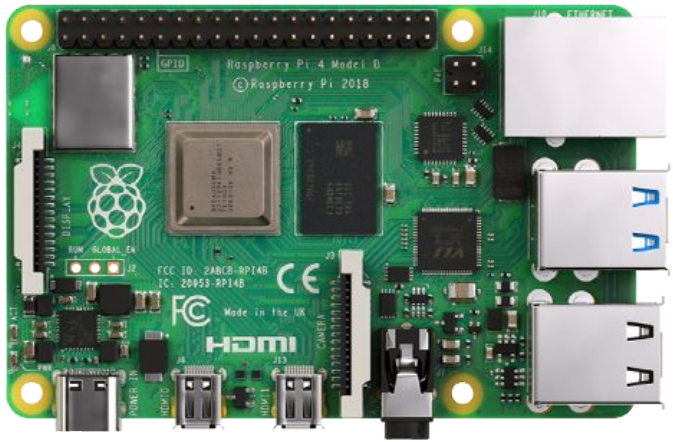
container 3



container 4



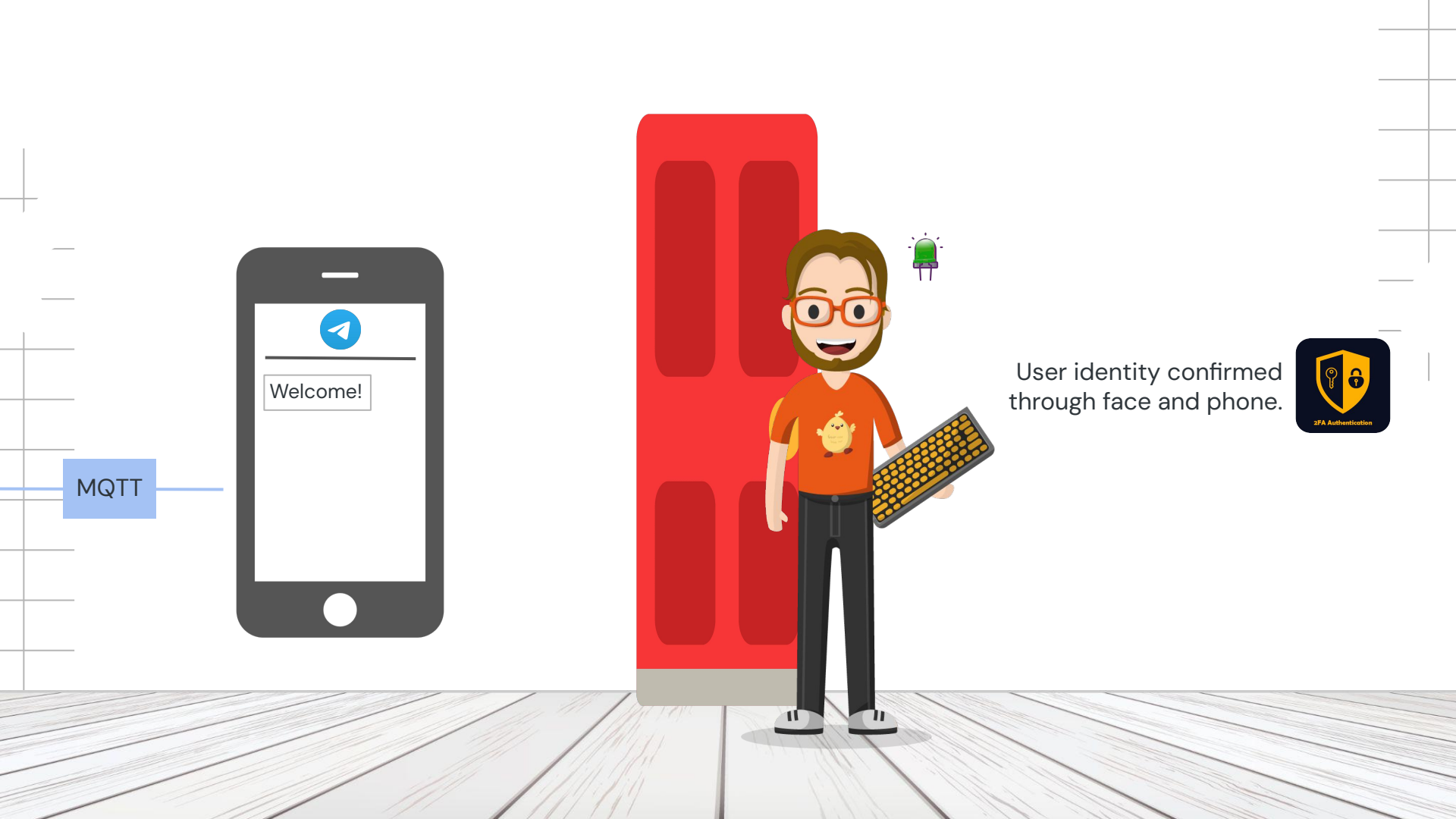
MQTT



MQTT

Face features extracted and validated against db record.

opencv, pythorch, face-recognition


Welcome!
MQTT
User identity confirmed
through face and phone.
2FA Authentication

Milestones in weeks

Initial presentation

- **Week of 12.10:** Research, gather materials (Raspberry Pis, camera, LED)
- **Week of 19.10:** Develop facial recognition system (FRS)
- **Week of 26.10:** Refine FRS, implement telegram communication
- **Week of 02.11:** Integrate 2 factors authentication (telegram + FRS)
- **Week of 09.11:** Set up LED feedbacks based on system status, prepare presentation

Midterm presentation

- **Week of 16.11:** Test complete system workflow.
- **Week of 23.11:** Debug, refine (optionally integrate: door status detection, admin interface)
- **Week of 30.11:** Implement data and logs retention policies
- **Week of 07.12:** Final testing, ensuring seamless operation, logging, final touches
- **Week of 14.12:** Documentation, video, prepare presentation

Final presentation

- **Week of 21.12:** Deliver and present FaceGuard

Resources

Raspberry pi components:

- Raspberry pi kit with similar parts to this project

Facial Recognition:

- Python library with some deep learning facial recognition models
- General guide to facial recognition and list of alternate methods

Face feature extraction:

- Deep learning on a raspberry pi
- How to quantize a deep learning model

Telegram:

- Telegram api examples
- Telegram bot example

Thanks

Do you have any questions?