

PROJECT 2022

1

Objective

Implement and demonstrate a prototype of
an *Inventory Management System (IMS)*



Project and Laboratory on Communication Systems
Project 2022

2

2

Requirements

Keep track of items in a **generic** inventory

- Description
- Location
- Add/Remove
- Borrow/Return
- Sell/Buy

Project and Laboratory on Communication Systems
Project 2022

3

3

Requirements

The system must be designed to be
adaptable to different scenarios:

- Library (e.g., school library)
- Laboratory (e.g., LED)
- Small shops
- Company (e.g., DET)
-

Project and Laboratory on Communication Systems
Project 2022

4

4

Requirements

The system's User Interfaces (UI's) will be:

- Web
- Dedicated device (totem)
- Smartphone

Project and Laboratory on Communication Systems
Project 2022

5

5

Roles

Administrator

Full control of the whole system

- Add/remove/reset customers and users
- Play the role of any customer/user

Customer

- Add/remove/reset its own users
- Add/remove/modify items
- Play the role of any of its users

User

- Get/return items

Project and Laboratory on Communication Systems
Project 2022

6

6

Web UI

Three different roles use it:

- Administrator
- Customer
- User



System Access rights

Authentication thru:

- Username/password (mandatory)
- Social profile (to get extra points)
- Certificate (to get extra points)

Project and Laboratory on Communication Systems
Project 2022

7

7

Web UI – Mandatory functions

Administrator:

- Add/remove/reset customers and users
- Add/remove all items
- Play any other role

Customer:

- Add/remove/reset its own users
- Add/remove all its items
- Get/return items (for a user)
- Play any of its users' role

User:

- Register to one or more customers

Project and Laboratory on Communication Systems
Project 2022

8

8

Totem UI

Two different roles use it:

- Customer
- User

Authentication thru :

- Username/password (mandatory) – first access
- RFID (mandatory) – next accesses
- Smartphone (again, to get extra points)

Project and Laboratory on Communication Systems
Project 2022

9

9

Totem UI – Mandatory functions

Customer:

- Add/remove item
- Get/return items (for a user)

User:

- Get/return items

Project and Laboratory on Communication Systems
Project 2022

10

10

Smartphone UI

Two different roles can use it:

- Customer
- User

First time authentication thru:

- Username/password (mandatory)
- RFID (mandatory)

Thereafter use smartphone authentication:

- PIN
- Biometrical data (fingerprint, face scan, ...)

Project and Laboratory on Communication Systems
Project 2022

11

11

Smartphone UI – Mandatory functions

Customer:

- Add/remove item
- Check items (location, presence/absence, ...)
- Get/return items (for a user)

User:

- Get/return items

Project and Laboratory on Communication Systems
Project 2022

12

12

System implementation

Database



Web interface

Totem

Smartphone

WebAPI



Flutter



Dart



Flask

Project and Laboratory on Communication Systems
Project 2022

13

13

Mandatory (max score 24/30)

Database



Totem



Flutter



Dart

Project and Laboratory on Communication Systems
Project 2022

14

14

Intermediate (max score 27/30)

Database



Web interface

Totem



Flutter



Dart

Project and Laboratory on Communication Systems
Project 2022

15

15

Full-fledged (max score 30L/30)

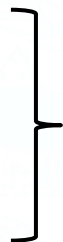
Database



Web interface

Totem

Smartphone



Flutter



Dart

Project and Laboratory on Communication Systems
Project 2022

16

16