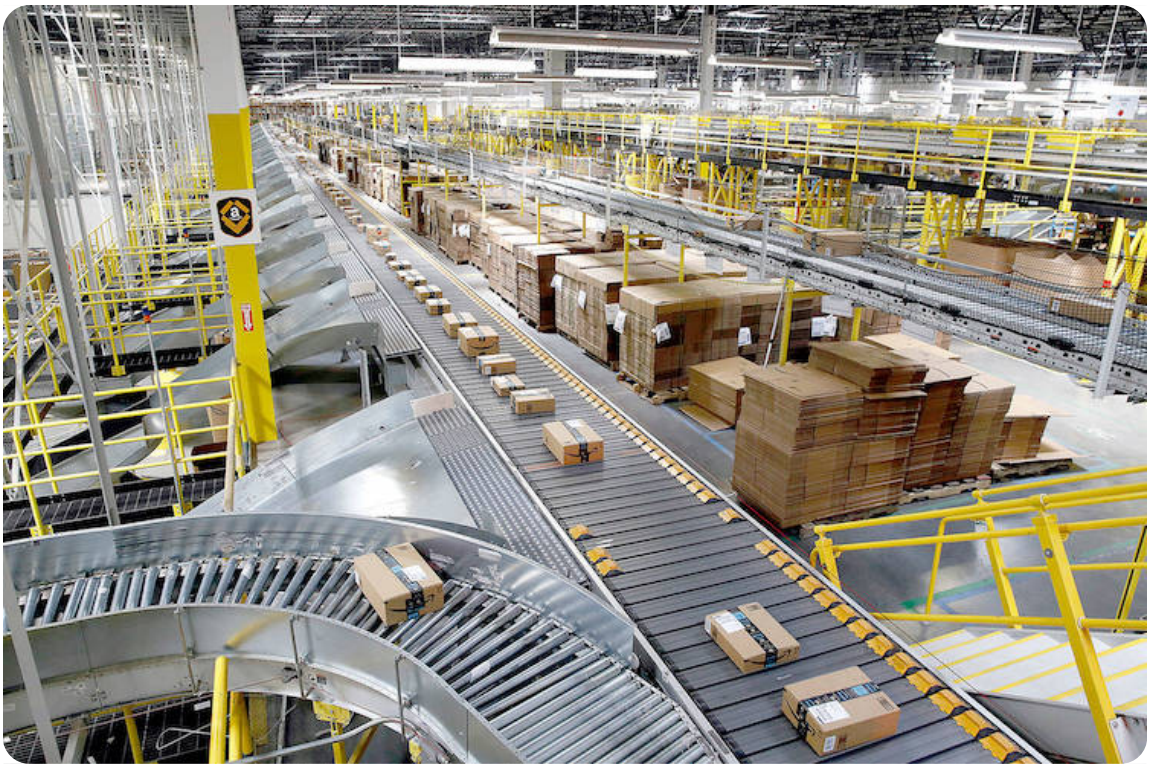
EPITECH. TECHNOLOGY

THE CONVEYOR

TIGHT & TOUGH LOGISTICS

THE CONVEYOR

Your customer has an old sorting conveyor that he wants to integrate into his recent installations.



The machine controller being obsolete, a new version has been developed by a service provider. It makes it possible to control all the components of the machine and to add network communication functions.

However, the service provider abruptly quit the project before being able to finalize the firmware.

The client will make available the meager elements it has to allow you to identify the makeup of the new controller

As physical access to the machine is not possible, you will be able to perform your tests remotely with the assistance of an on site technician

Conveyor information

The conveyor receives packages directly after their manufacture and packaging by the production lines. It must direct them to one of the three storage warehouses and feed the information back to the WMS in order to track the stock.

When a package arrives on the line, the conveyor must:

- ✓ bring the package to an NFC reader ;
- ✓ read the product reference on the card ;
- ✓ query the list of WMS products to obtain its destination and other information ;
- ✓ create a stock movement in the WMS to the destination warehouse ;
- ✓ add on the tag the reference of the stock movement (and other info) ;
- ✓ direct the package to the appropriate exit.

Information on Warehouse Management System

The customer uses Dolibarr with *stock* module. It is possible to communicate with dolibarr using its API REST.

The system operates in a network and records all parcel movements **at each sorting step**. Data is stored on NFC tags allowing tracking of each package.

A user is specifically dedicated to the conveyor, the access token will be provided to you

When a package arrives on the conveyor, its tag contains an identifier that corresponds to the *product reference* in dolibarr. It allows you to find the destination warehouse.

Dolibarr shall contain at least 3 different product reference (typ. A, B, C). Each product record in the WMS contains multiple informations: default warehouse, surface, weight, etc…
Three *warehouses*, A, B and C, are configured, corresponding to the three possible outputs of the conveyor.

The conveyor must then create a *stock movement* in the WMS and write in the NFC tag of the package the reference of the movement that the WMS will have sent in response, as well as a timetag.

Other information

The sorter is part of a complete logistics line, the customer insists on the ability of the machine to quickly restore operation in the event of a service interruption.

The controller must be able to return to its operating state in the event of an outage (power failure, manual interruption, loss of connection, etc.)

Deliveries

In order to validate the progress of the project, the client asks to follow the following steps:

- ✓ **POC roadmap**:
  The customer wishes to document the composition of the controller.
  Sbmit an intermediary report to:
  - identify the controller elements ;
  - present what you are about to do with them (october).
- ✓ **Testing sessions**:
  You'll have access to the machine, **for a limited time**, to carry out some test on:
  - Handling of the controller (optional - 30 min - november) ;
  - WMS communication tests (optional - 30 min - december) ;
  - Firmware test and debug (mandatory - 45 min - january).
- ✓ **Final delivery** of firmware and associated documentation (february).

The firmware **must** be written in C/C++ (Arduino environment).
UiFlow (Sketch) and micropython are **not** allowed.

v 0.3