

An Investigation into PLC Driven Automated Industrial Sorting

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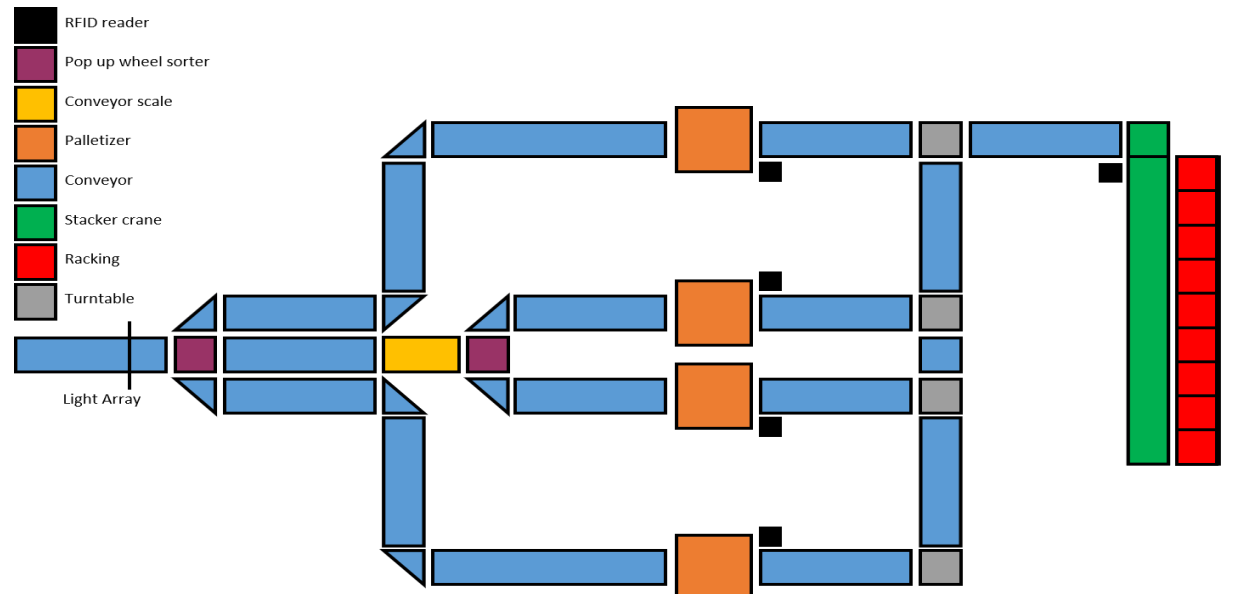
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Aims & Objectives

The aim of the following report is to solve the problem of designing and developing a system whereby an industrial sorting process is completely automated from sorting to storage. If it is possible, this report will analyse to what extent this would be an effective process in the design and development for potential factories.

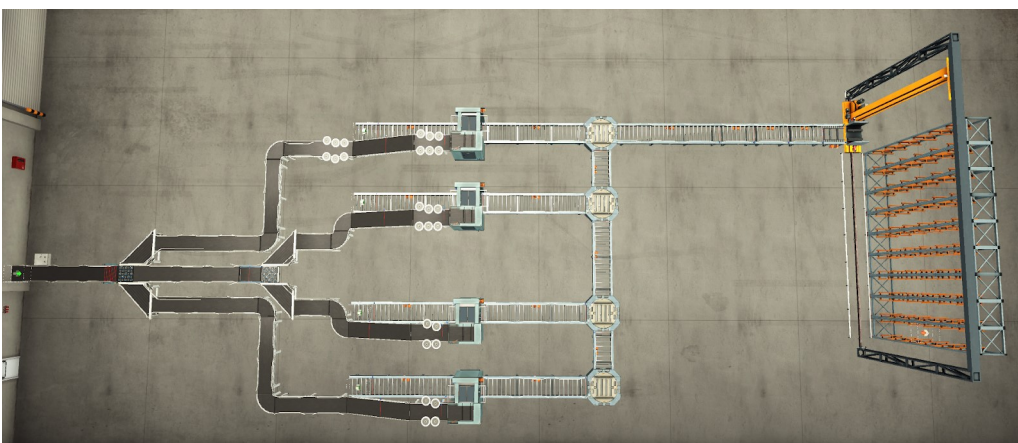
Some of the main objectives of the factory system are:

- Sort the incoming feed of parcels on to four different routes based on size and weight.
- Organise the parcels uniformly onto their respective pallets
- Tag a completed pallet with a RFID tag.
- Merge separate lanes of loaded pallets into one lane where they will await storage.
- Store complete pallets in reference to RFID tag.



Software and Design

In order to design an automated industrial sorting system, Factory.IO has been used as the software to simulate the factory. This software comes equipped with an array of components that can be arranged in any orientation to build a working factory. The factory will demonstrate the sorting abilities that can be programmed by a PLC module. The factory will be designed to receive 4 different types of parcels; pallet boxes, small boxes, medium boxes and large boxes. The small and medium boxes are of the same height but differ in mass. All of the parcels will initially be separated according to height, then the small and medium boxes are split by weight. Once all four parcels are separated, they are uniformly stacked onto their respective pallets before subsequently being stored away in an automated racking system at the end of the sorting process.



Conclusions

The project has shown that designing and running a fully-automated virtual factory is definitely possible through the means of these softwares. However, it has also outlined some potential shortcomings within the softwares.

