

Automatic emptying of paloxes with automatic in- and output

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Specialization Bridging programme for Master of Electromechanical Engineering Technology



BOMI fruit

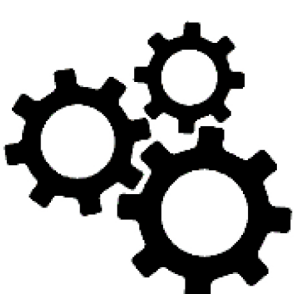
This bachelor thesis is based on a case study for the fruit-sorting department of the company BOMI fruit. In this area, the apples or pears get cleaned, dried and afterwards these fruits are sorted by weight and size. The fruit is delivered to the sorting area in "paloxes". "Paloxes" are wooden or PVC boxes used to transport the fruit from the fields to the company.

The designed machine ensures that the palox is emptied into the sorting-machine without causing any damage to the fruit.



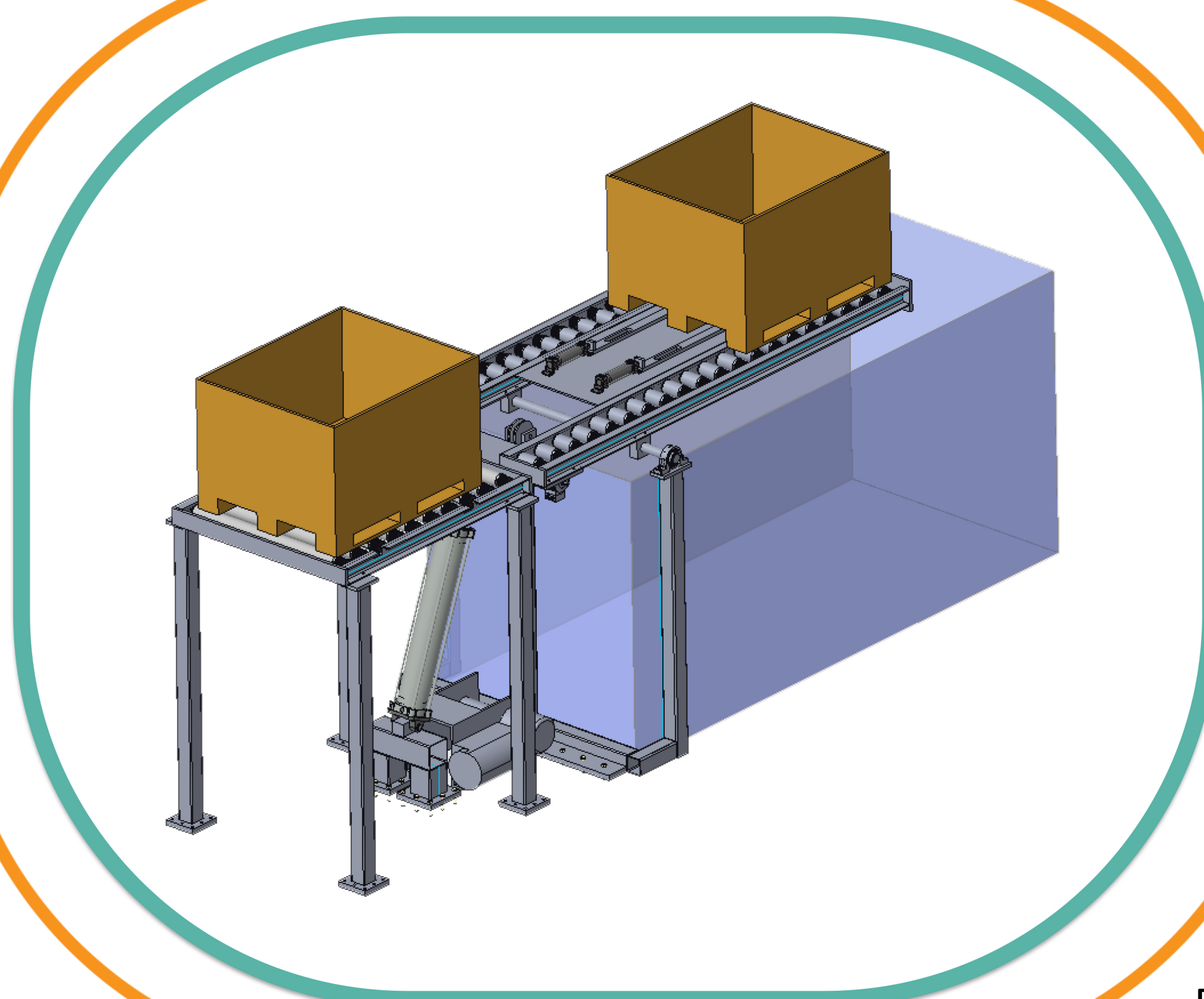
Problem definition

Currently the company already owns a machine to empty the paloxes. However, the current process damages the fruit while the palox is emptied. Due to this problem the high quality of the fruit required by the stores, is no longer guaranteed. Obviously this is not desirable.



Principle

First the designed machine tilts the whole roller conveyer into a water basin. Second the piston pushes the plate under the palox upwards and the palox is tilted in an angle of 110 degrees. The water flow in the basin ensures that the fruit is transported to the sorting machine. The palox is now emptied. Finally the machine returns to its original position, and the palox can now be taken to the output of the machine.



Requirements

- Mixing ratio 1 to 4 •
- Electrical or pneumatic components •
- Automatic in- and output •
- Production time 15 min for 1 palox •
- No pollution by leaks (hygiene) •
- Dimensions gate 4 x 4,5 m (lxb) •
- Dimensions palox 1200 x 1000 x 790 mm (lxbxh) •
- Machine compatible for water drainage system •
- Machine compatible for wooden or PVC palox •

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