




Conveyor belt with possibility of sorting products

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| Countries: | Czech Republic  | Slovakia  |
| Suitable for grade: | 3 - 4 | 3 - 4 |
| Specialization: | Automatic systems | Technical lyceum, Electrotechnics |
| Responsible teacher: | Václav Sedlák | Jan Lechman |

Project description:

The goal is to construct conveyor belt for transport material with possibility of sorting by different parameters. Product will be separated by parameters like metal detection, height detection, weight detection and reflection detection. Sorting starts using of START button on control panel depending on presence of product in initial position of conveyor belt. Sorting is possible to stop with STOP button in every moment of processing time. Full control of the device will be provided by controlling system of PLC AMiT.

Project tasks:

Student #1 (CZ):

- Create program for PLC AMiT, which will control whole process of separation
- Perform a diagnosis of created program and tune up possible problems
- Create interface for connecting to controlled part of conveyor belt device
- Depending on amount of outputs and inputs create connector for communication with controlled part of conveyor belt device
- Write documentation both - in English and Czech language

Student #2 (SK):

- Create construction of conveyor belt
- Place into construction in-built sensors for detection of relevant parameters
- Place into construction actuators for separation of products and signalization
- Depending on amount of outputs and inputs create connector for communication with PLC AMiT
- Prepare product models for each type of detection
- Test detections and actions for smooth implementation of PLC
- Write documentation both - in English and Slovak language

Success criteria:

Project will be successful after construction of working separation line based on conveyor belt, sensors and sorting actuator, that will be able to sort material differed by various properties (height, weight, material, ...). Project should also have basic safety elements. All project parts should be cost efficient and controller program should be well designed (time and memory efficient, without bugs). Project documentation has to be prepared based on given template in the range of 15-25 in English and native language.



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Developed hard skills:

Programming, debugging, making connectors and connections, working with sensors and actuators, electronic measurement, working with datasheets, programming of PLC using ladder schemes or programming language, processing materials, manual work with metal or other materials

Developed soft skills:

Cooperation, working with computer, planning, teamwork, tracking progress, communication in foreign language, responsibility, compliance with agreements, respect deadlines, problem solving, finding and processing information, design thinking, following and applying safety and ergonomic rules