Co-funded by the Erasmus+ Programme of the European Union

Programmable robot for kids

Countries:	Slovenia	Slovakia
Suitable for grade:		3 - 4
Specialization:		Technical lyceum Electrotechnics
Responsible teacher:		Jozef Gmiter

Project description:
Goal of this project is to build simple robot for kids that can be programmable by kids. On the top of the robot will be programming area with holes. Kids can put objects/bricks (e.g. colored cubes, cards, sticks,…) in these holes and depending on inserted brick robot make its movement (forward, backward, turn left/right, beep, blink, …). Robot will be ran on batteries and it should be safe for kids (no very small parts, moderate movements,…). Similar robot can be found on youtube finding Cubetto.

Project tasks:
Student #1 (SI):

- Design mechanical part of robot (case, wheels, gears)
- Design propulsion of robot motors and motor drivers
- Assembly mechanical parts and motors
- Test robot movements

Student #2 (SK):

- Design bricks for programming robot
- Design PCB for microcontroller and circuits for reading brick properties
- Prepare application for microcontroller that will read brick properties and depending on program built of bricks make desirable movements
- Program should run in two modes – loop and one-time
- Connect microcontroller outputs to propulsion part of robot
- Test robot programming

Success criteria:
Project will be successful after construction of working robot following the commands created by bricks or another objects to follow some path or proceed simple tasks. Project should also follow safety rules according to its usage by small kids. All project parts should be cost efficient and software code 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.

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 safety and ergonomic rules

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