LED cube

Countries:	Slovenia	Poland
Suitable for grade:		2 - 3
Specialization:		IT or mechatronics
Project teacher:		Beata Organ

Project description:

In this task, a system consisting of two parts must be designed, executed and started:
- a display consisting of LED diodes arranged in the shape of a cube,
- control system - a system based on a microprocessor that performs a display control function.
The effects presented on the LED matrix and the way of control will be determined by the students during the task implementation.

Project tasks:

Student #1 (PL):

- cooperation with the SLO student to determine the details of the task
- design and implementation of an auxiliary tool for cube-shaped LED diodes assembly
- execution of the LED matrix in accordance with the agreements
- preparation of the connector for the control board
- performing the LED cube test
- preparation of documentation in Polish and English

Student #2 (SLO):

- communication with the PL student to determine the details of the task
- designing the pattern and making a printed circuit
- implementation of the LED matrix control system
- programming the microprocessor microcircuit
- preparation of documentation in Slovenian and English

Success criteria:
The task would be completed when the designed patterns will display on the LED Cube. During the project evaluation, the design will take into account the diligence of implementation and the quality of the displayed effects.

Developed hard skills:
Programming, debugging, soldering, drilling, PCB designing and making, electronics, working with vacuum components, electronic measurement, working with datasheets, mechanical treatment of materials, choosing materials, computer graphics, CAD systems.

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.