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Training of specialists for implementation of the agriculture digitization programme

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Problem statement

• A lack of qualified engineering personnel, who are able to apply various solutions in the field of AIC digitalization, which are based on the use of modern computer technologies.
Solution methods

New pedagogical technologies for strengthening the involvement and internal motivation of students to receive education, and improving the fundamental education in the field of computer technology.

- Creation of digital platforms that will directly bring together producers and consumers, as well as provide an opportunity for users to monitor the status of the purchased product in real time.
- The use of biomashsystems based on neural network technologies and big data processing.
- The use of CNC machines in the AIC, production robotization.
- The use of sensor systems in agriculture that ensure high efficiency of land use.
Solution methods

New pedagogical technology

- Definition of system requirements and limitations
- Decomposition into software and hardware
  - Software development
  - Drawing up a functional diagram of a system
    - Block diagram
    - Schematic wiring diagram
- Integration and testing
- Production
Solution methods

New pedagogical technology
New pedagogical technology

- Memory
- Device for collecting information
- Microprocessor
- Bus
- Interface 1
- Interface 2
- Interface 3
- Element of the user interface
- Actuation mechanism
Solution methods

New pedagogical technology

Task example

Automation of measuring the weight of agricultural products.

Develop a subsystem for automatic weighing of the harvested crop in transport. This subsystem should perform the following functions:

✓ Monitor the position of transport with agricultural products on the scales.
✓ Notify the driver about the need to adjust the position of transport.
✓ Collect data on the time of departure and arrival of transport, the weight of agricultural products.
✓ Send data to the server to collect statistics.
Conclusions

• Students develop systems, that fits perfectly into the main trends in AIC digitalization.

• First-year students perform complex tasks.

• The proposed pedagogical methodology:
  ✓ implies the possibility of implementing various systems for the AIC digitalization;
  ✓ contributes to the formation of a sustainable set of fundamental knowledge about the development of such systems.
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