



Tempus

Development of Embedded System Courses with implementation  
of Innovative Virtual approaches for integration of Research,  
Education and Production in UA, GE, AM

DesIRE



Report on pilot teaching  
from 02.02.2016 till 11.11.2016

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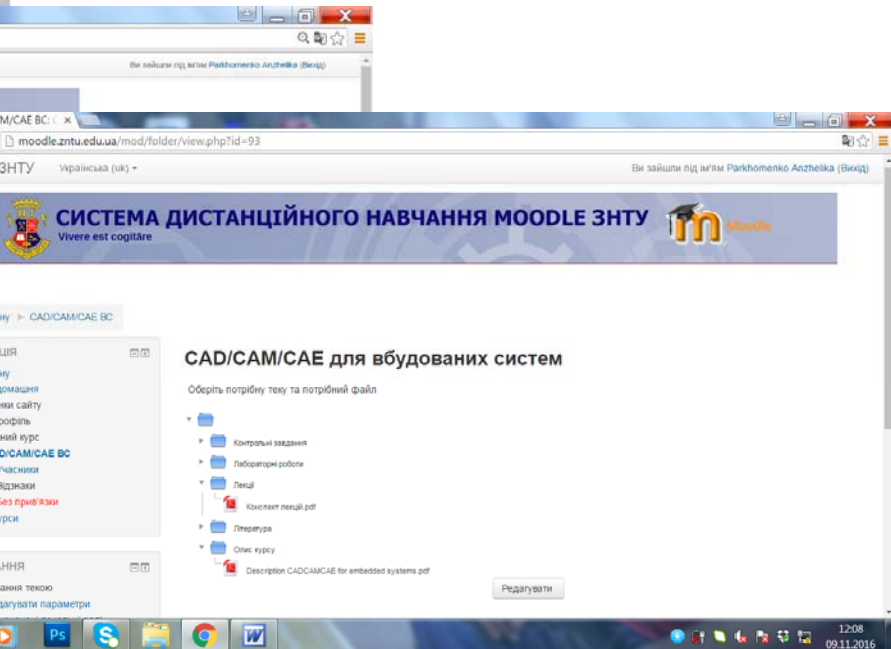
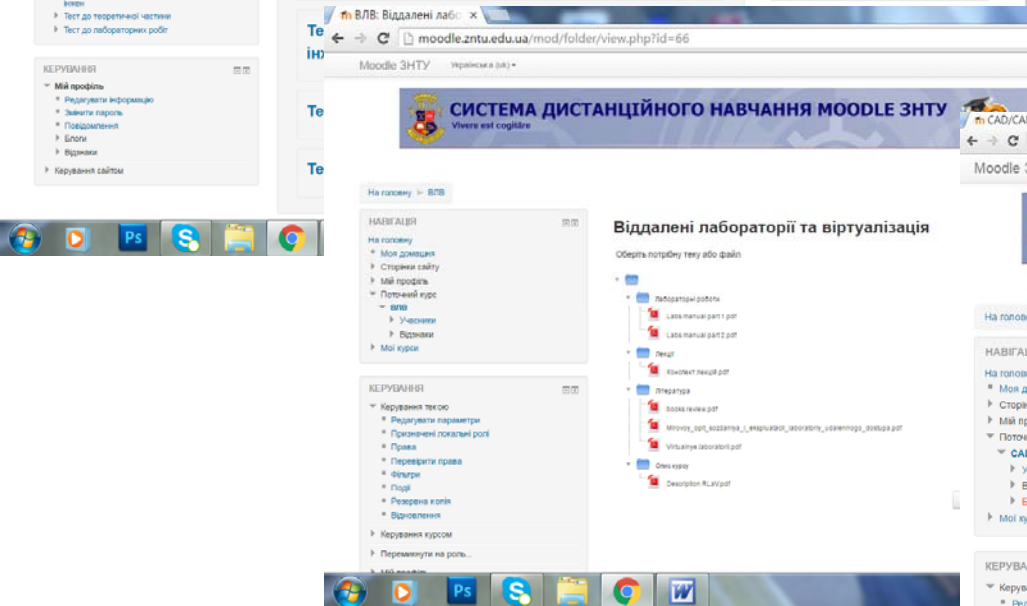
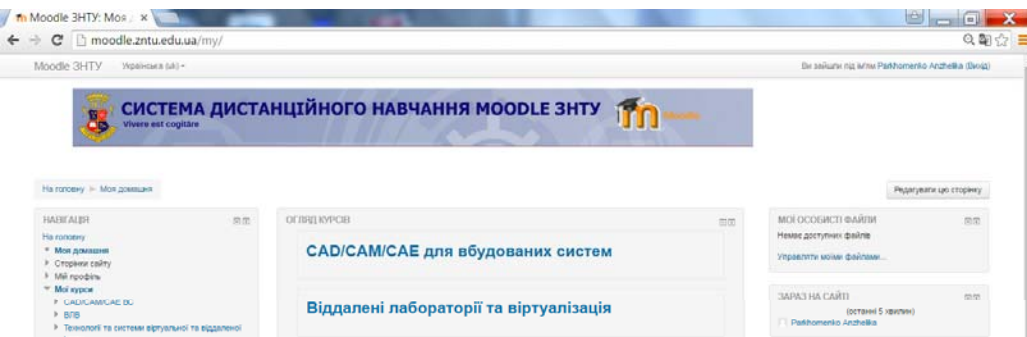


# Tempus

## Development of Embedded System Courses with implementation of Innovative Virtual approaches for integration of Research, Education and Production in UA, GE, AM

### Project modules development

<http://moodle.zntu.edu.ua/course/index.php?categoryid=263>





## Specialties:

- Information Technology of Design
- Software systems
- Artificial intelligence systems

## Disciplines:

- Electronics and electrotechniks
- CAD
- Modern CAD/CAM/CAE systems
- Technologies and systems of virtual and remote engineering
- Physical basics of modern information technologies
- Multimedia information technologies and systems
- Technologies and systems of computer-aided design



## Spring semester 2016 (84 st.)

	Discipline	Group	Number of students
1	Technologies and systems of virtual and remote engineering / MCAD structural design, Creo	CST 421 m	10
2	Technologies and systems of computer-aided design / Arduino	CST 721 m	4
3	Electronics and electrotechniks / Arduino	CST 715-725, 215-225	40
4	Multimedia information technologies and systems / Remote Labs and Virtualization, Arduino	CST 213	10
5	CAD/ ECAD electronic design, ALTIUM DESIGNER	CST 413	20



### Results of a students survey

#### •First year of study

Electronics and electrotechniks (33 st.)

#### •Third year of study

Multimedia information technologies and systems (3 st.)

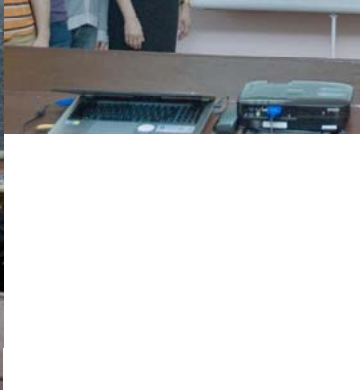
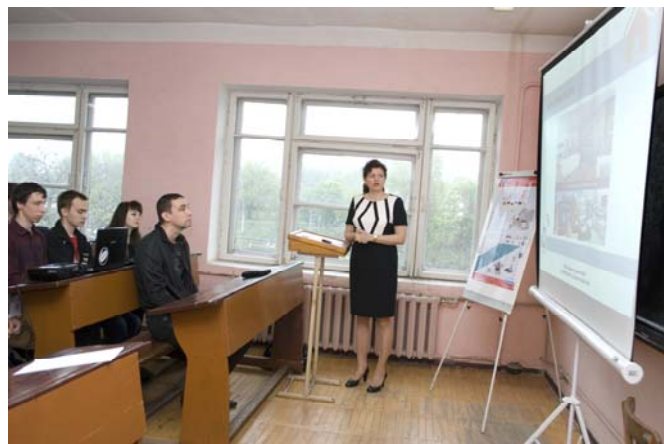
#### •Fifth year of study

Technologies and systems of computer-aided design (3 st.)





### SMART LIFE project team at the conference “ZNTU Science Week» (April, 2016)



<http://www.zntu.edu.ua/integraciya-tehnologiy-internet-things-v-proces-pidgotovky-it-fahivciv>



### SMART LIFE project team at the exhibition “STEM-education of Zaporizhzhyan region – 2016» (April, 2016)



<http://www.zntu.edu.ua/stem-osvita-zaporizkogo-krayu-2016>



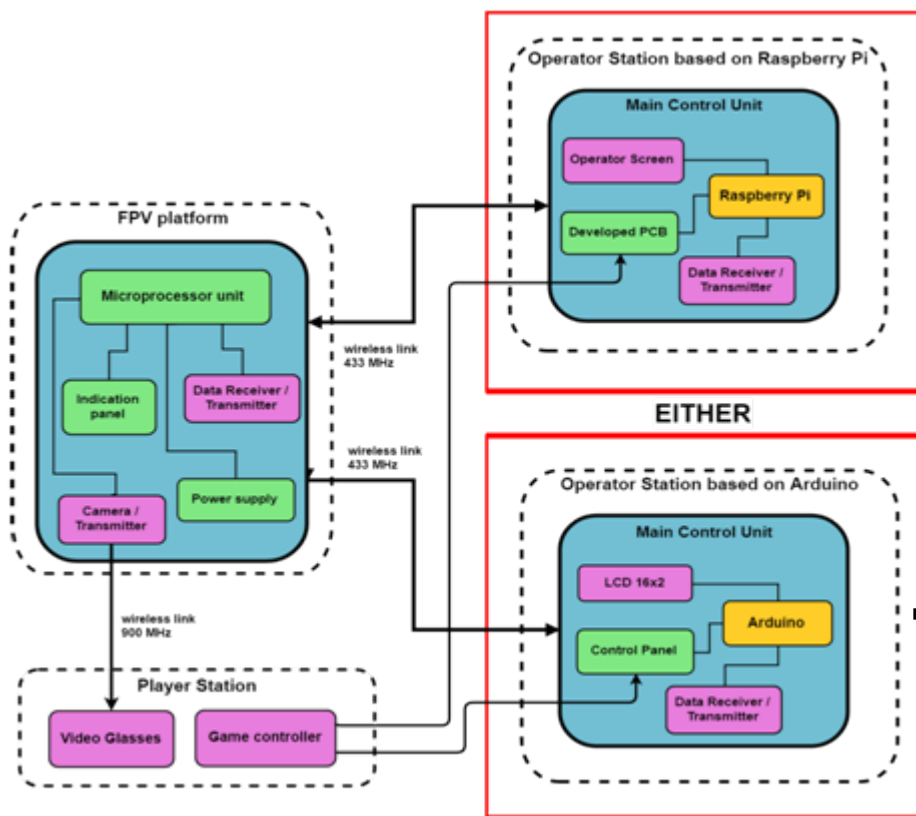
## Bachelors and Specialists degree works (May, 2016)

- Holoviznin O. (CST 411) Development of the automated climate control subsystem
- Haman A.(CST 212 ) Diagnostics of the remote lab RELDES failures
- Kravchenko D. (CST 712) Mobile object control system modernization based on Raspberry Pi
- Kravchenko A. (CST 712) Mobile object control system modernization based on Arduino





### FPV Auto Project results: demonstration of Bachelor's degree works, May, 2016





## Fall semester 2016 (89 st.)

	Discipline	Group	Number of students
1	CAD / ECAD electronic design, ALTIUM DESIGNER	CST 713,724τ+213+224τ	48
2	Modern CAD/CAM/CAE / MCAD structural design, Creo	CST 722m,412+712	21
3	Physical basics of modern information technologies / Arduino	CST 722m,412+712	5
4	Multimedia information technologies and systems / Remote Labs and Virtualization, Arduino (Project work)	CST 213+224τ	15



### VIII International scientific-practical conference «Modern problems and achievements in the field of radio engineering, telecommunications and information technologies», Zaporizhzhya, September, 2016



<http://www.zntu.edu.ua/zvit-pro-robotu-specialnoyi-sekciyi-vbudovani-system-ta-iot-desire>

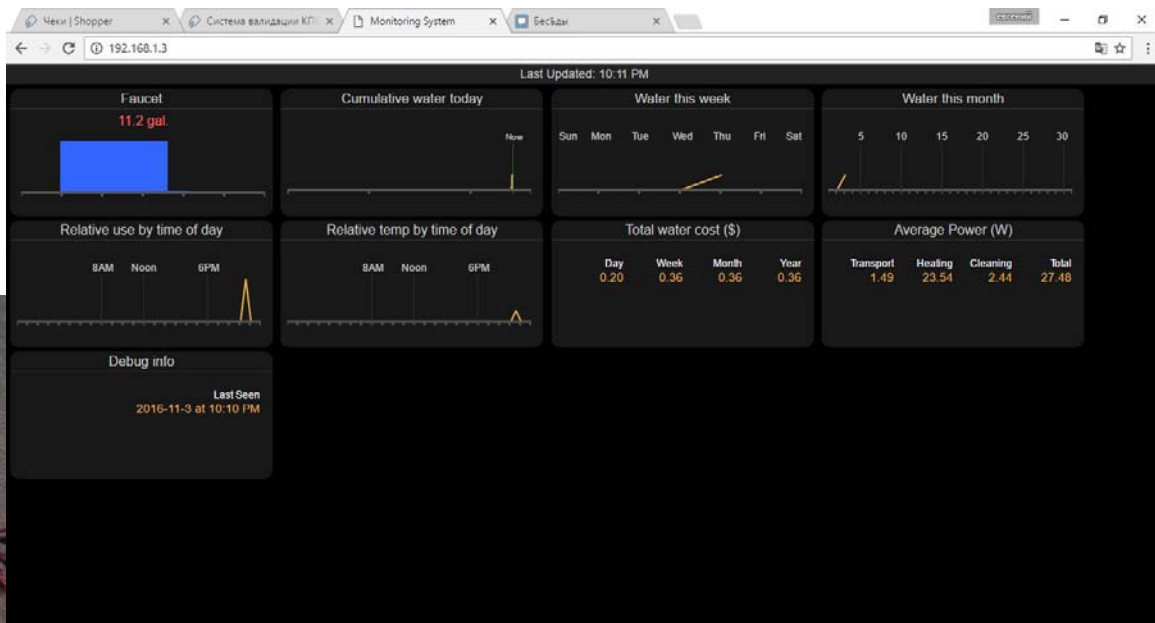


## Themes of Master theses (December, 2016)

- Grigoriev E. (CST-721 m) Hardware/software platform for IoT
- Tulenkov A. (CST-721 m) Remote lab Smart House
- Mysyura S. (CST-721 m) Smart bee house

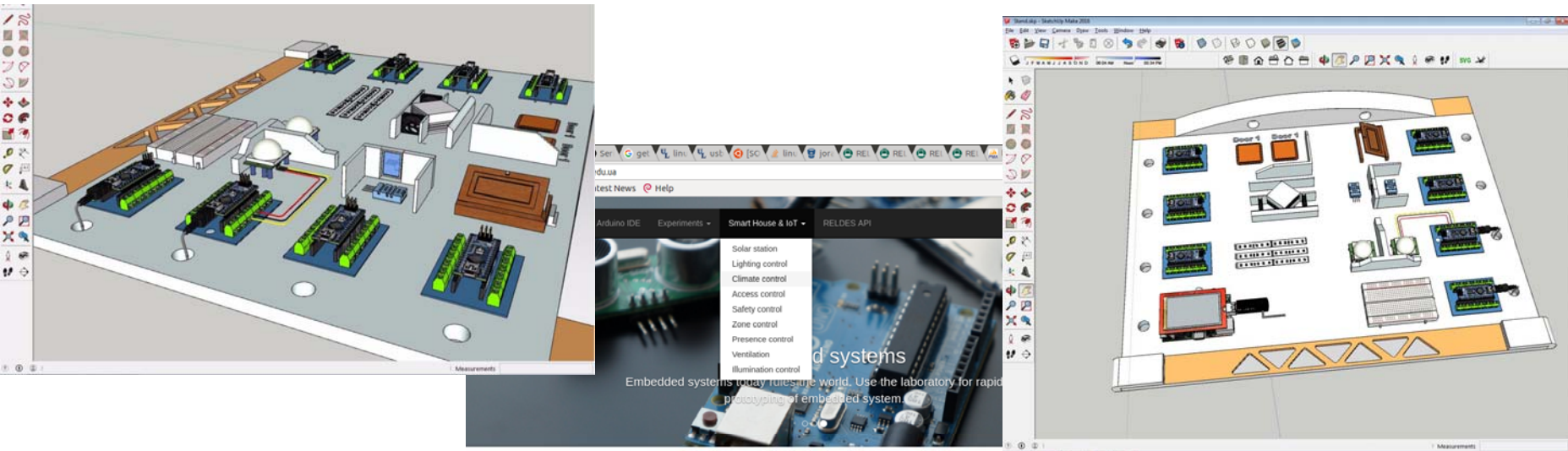


### Work in progress: Automated system for resources monitoring





### Work in progress: Remote lab IoT & Smart House



**Cross-platform**  
Use any device and operation system



**Configurable experiment**  
Write your own code or use code templates



**Accessibility**  
Use our hardware instead of spending money

Remote laboratory

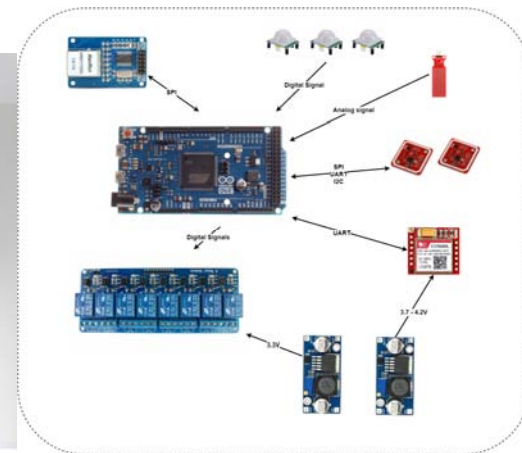
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Show all



### Work in progress: Smart lab a.53a





## Conclusion

Implementation of real projects gives students valuable practical experience and knowledge, motivation to research, to work in team, to communicate with the customer, to present the results of their work to an audience.





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Thank You for Your Attention

