The check of input initial data on the adjacent reference value envisaged in the program [2].

Currently program checkout is carried out. After its completion the registration of the software and implementation in the educational process is planned for students directions 140400.

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SMART HOUSE HYBRID

A. Filyukov, A. Buran
Tomsk Polytechnic University

Energy resources deficiency is one of the global challenges in the modern world. Energy consumption increases every year, although the resources of our planet are limited. Nowadays, energy and construction companies try to find the solution to this problem. They invent, apply and integrate technologies which will help not only keep Earth's energy resources, but also create surplus necessary for different purposes. One of the technologies is Smart House Hybrid technology. It represents an application of advanced technologies in the field of alternative energy resources and absolute automation.

Experimental setup and methods. We've conducted a research concerning the systems of "Smart House Hybrid" and we've got figures proving an efficient use of energy resources. The first system to be checked was water-heating system.

The Main Systems of "Smart House Hybrid"

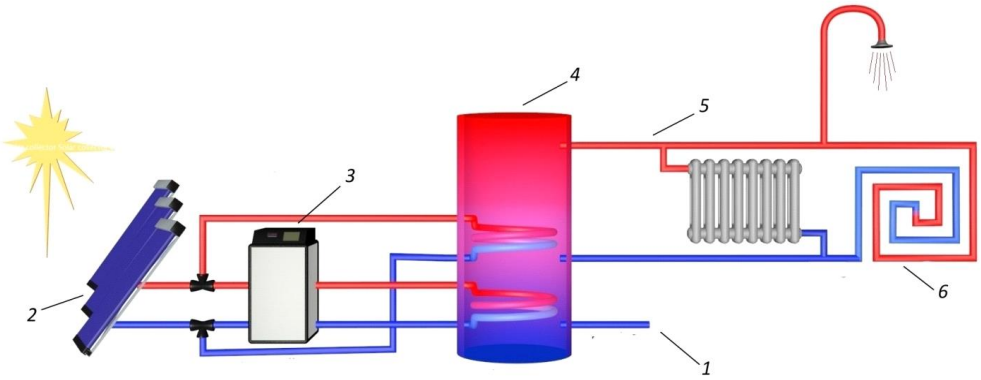

Figure 1. *1-cold water, 2-solar collector, 3 –thermal pump, 4-boiler, 5-warm water, 6- heat-insulated floor*

Solar collector. A solar collector is used to heat water in economic and household purposes. The collector is a basic element of automatic water-heating system in Smart House Hybrid. It can be integrated into the existing water-heating system as a parallel alternative energy source. The collector works from sun rays with circulating water in it.

From 01.06.2014 to 01.09.2014 we took measurements of water temperature in collectors during a day. Having analysed these data, we have come to the conclusion that the average temperature of heating such a system in a temperate zone of Russia varies from 15 C˚ to 24 C˚. In the countries with warm climate, the average temperature of water heated in collectors can vary from 22 C˚ to 32 C˚.

Solar module of "Smart House Hybrid". The aim of the second part of our research was to check solar modules for the intellectual house. In this part of the experiment standard devices for receiving and transformation of solar energy to useful power have been used. A solar power station consists of solar batteries, a charge controller, an inverter; accumulators, machine guns of direct current, a set of cables and sockets.

We've carried out measurements: VAC (Volt-Ampere Characteristic) of the solar module in different temperatures from 25 to 75 C˚. We've received maximum values of energy absorbed by modules.

Using of solar batteries will produce the amount of electric power (3-5 KW) necessary to provide residents of a country house with electricity consumed by all electric appliances in a house.

The result of our research is that a Smart House can consist of a set of intellectual systems which will allow not only to use the electric power effectively, but also to improve control and safety systems in the house.

The control system of the "Smart House Hybrid" includes lighting control, climate control and a security system (sensors of gas control and electric power supply, a fire alarm system and others).

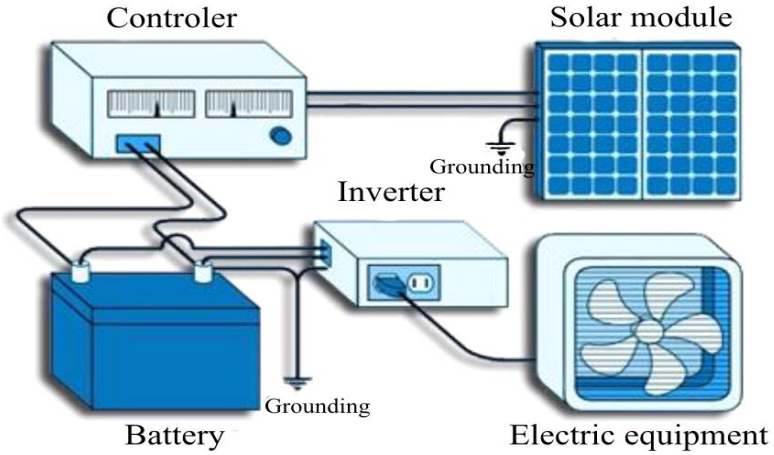

Figure 2. Solar module of "Smart House Hybrid.

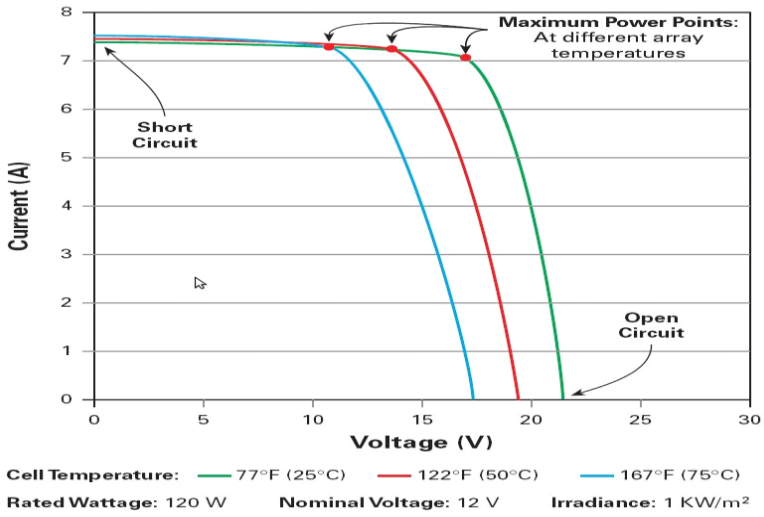

Figure 3.

Results. Having analysed the data and having carried out necessary calculations, we've counted the approximate cost and the intellectual house service within 10 years.

We have received not only autonomous housing, but a modern and reliable complex of systems which will help live comfortably in a house. The main advantage of this system is its economy. Because of different systems integration into the house, we can completely refuse from electricity and central heating from the outside. And it allows to cut expenses and to save about 43% of all the expenses.

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ENERGIE MODERNE: ASPECT TERMINOLOGIQUE DANS L`ENSEIGNEMENT DU FRANÇAIS LANGUE ETRANGERE

V. Izvekov, V.Rostovtséva
Université polytechnique de Tomsk

Les langues étrangères font partie indispensable des programmes de la formation dans les Grandes Ecoles. Des étudiants – futurs ingénieurs – le reconnaissent sans doute. Le français comme une langue étrangère est une “petite langue”: ceux qui l`apprennent sont peu nombreux à l`Institut de Génie énergétique. De plus, au niveau universitaire on ne propose pas le “français professionnel” dont les étudiants ont de plus en plus besoin grâce aux perspectives des projets interuniversitaires entre la Russie et la France. Voilà une sorte de contradiction d`où vient un problème de recherches des moyens pédagigiques.

Le “français professionnel” pourrait se réaliser comme des cours d`option supplémentaire en troisième et en quartième années mais suite des problèmes au plan organisationel cela reste irréalisable. Selons nous, la seule voie qui semble être acceptable dans une situation actuelle consiste à appliquer une “approche professionnelle” dans le cadre de l`enseignement traditionnel à l`université. Donc il faudrait trouver certains moyens pédagigiques ce qui a determine le but de l`article ci-dessous.

La théorie de l`enseignement des langues étrangères décrit plusieurs étapes de la realisation de “l`approche professionnelle”. La première est liée avec l`aspect terminologique de la langue étudiée en fonction de la filière de la formation. Dans notre cas c`est le domaine énergétique. La terminologie à apprendre ne peut pas et ne doit pas remplacer l`apprentissage en question. Il serait nécessaire de préciser certains vecteurs de son integration.