

Saturated hydrocarbons of the aliphatic series C_1-C_{10} , saturated hydrocarbons of the aliphatic series $C_{11}-C_{19}$ and unsaturated hydrocarbons of aliphatic series are formed during loading and unloading operations, as well as during transportation of raw materials and finished products, including fueling of the vehicles, at transport and loading site. The emissions of saturated hydrocarbons of the aliphatic series C_1-C_{10} were 0.104 tons in 2010, 0,043 tons in 2013, and 0.041 tons in 2015, thereby it is possible to trace the trend of reducing the emissions of this type of pollutants. The emissions of saturated hydrocarbons of the aliphatic series $C_{11}-C_{19}$ have decreased by 0,005 tons during this period. The emissions of unsaturated hydrocarbons of aliphatic series increased by 0,042 tons from 2010 to 2012, the emissions decreased by 0,027 tons from 2012 to 2013 and by the end of 2015 the emissions were 0,047 tons, thus in comparison with 2013, they have increased by 0,027 tons.

The analysis of pollutant emissions into the atmosphere at OJSC "Barhim" during the period of 2010–2015 has shown that in the first place in the terms of formation there are xylenes, namely 1,449 tons, which is 46 %. In the second place, there is inorganic dust with $SiO_2 < 70$ %, namely 0,698 t, which is 22 %. In the third place there are saturated hydrocarbons of the aliphatic series C_1-C_{10} , namely 0,333 t, which is 11 % of the total volume of the emissions.

By the end of 2015, such substances as wood dust, benz(a)pyrene, fluorine gaseous compounds – hydrofluorides, as well as benzene, were not present due to the changes in the technological process and are not emitted by the enterprise at the present time.

The company annually carries out measures to reduce pollutant emissions into the atmosphere, such as the replacement of bag filters of gas cleaning systems, control of the exhaust gases and smoke content in vehicle exhaust, control of pollutants in the sanitary protection zone, obtaining permits for the emission of pollutants into the atmosphere, verification of the efficiency of gas cleaning systems (tests are conducted during the stocktaking), technical inspection of gas cleaning installations by the commission.

AUTOMATION OF POWER MANAGEMENT IN THE EDUCATIONAL BUILDING

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The purpose of the developed automated system is the optimization of energy consumption, ensuring the reliability of data on accounting of consumption of energy resources, increase in comfort due to informing and automatic control of resources. It will allow not only to control the current electricity consumption, but also in an emergency situation automatically to block power supply or to use alternative power engineering. In the future the automated system will allow to carry out self-regulation on management of certain components of system.

Keywords: automated system, power management, microcomputer Raspberry Pi, MySQL.

The application of modern means and the systems of automation allows to perform the following problems:

- to conduct the process with the maximum efficiency automatically taking into account continuous changes of technological parameters, properties of raw materials, changes in the environment, possible human mistakes;
- to operate process by expeditious reorganization of the modes of technological equipment, redistribution of actions on the same equipment, etc.;
- to operate automatically the technological processes under harmful or dangerous conditions [1].

The object of automation is monitoring and control of power supply of the educational building of ISEI. As a basis of the control system the one-paid microcomputer of Raspberry Pi is chosen. A feature of this microcomputer is that it can work under control of Windows and Linux operating systems and also Android mobile operating system. Besides standard interface, inherent in the computer the Raspberry Pi has exits for connection of external devices that broadens the scope of its application in the systems of different level of automation.

As storage of data it is chosen MySQL database. The scheme of base is provided on the Figure 1.

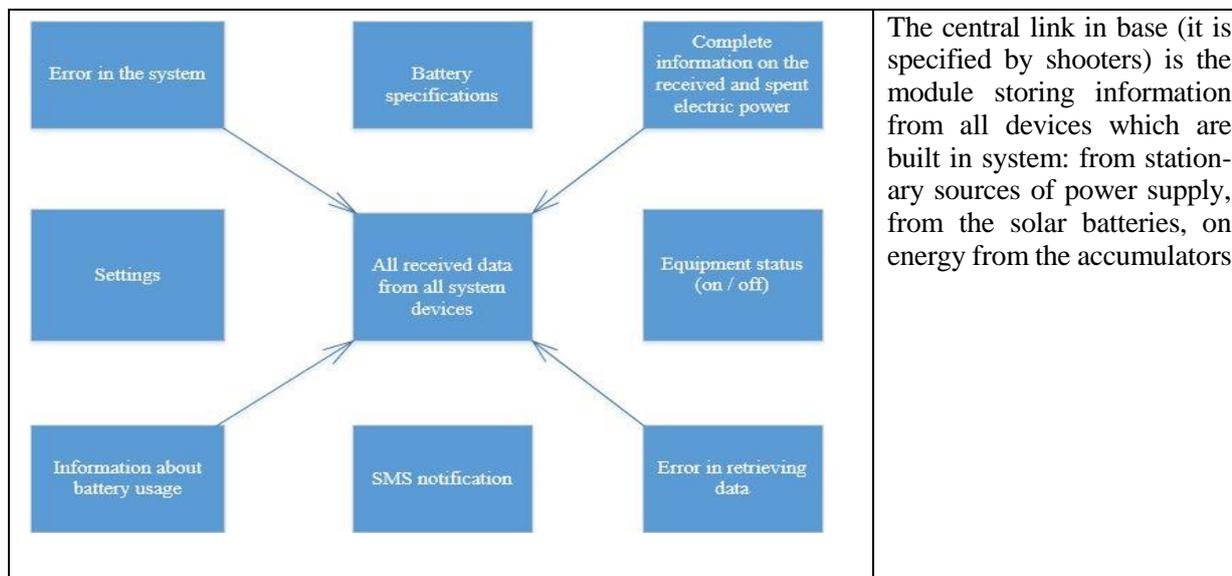


Figure 1 – The schema of database

Today all such systems (e. g. "Smart house"), are expensive, so not each person or the enterprise is able to afford to acquire such system. The presented system, considerably will lower expenses. Also, the system is quite compact and can quietly be located in a box, but not occupy the whole room.

BIBLIOGRAPHY

1. Automation system power management [Electronic resource] // Mode of access: <http://electricalschool.info/main/elsnabg/1536-avtomatizacija-sistem-upravljenja.html>

THE FUTURE OF FOOD: MEAT ALTERNATIVES

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The influence of livestock farming on the general state of the planet is discussed in this work. There are many negative effects of irrational meat consumption such as hungry in ones countries and obesity in others. Changing of climate is linked with greenhouse gases, which located in the processes of animals live activity.

Keywords: meat, climate change, greenhouse gas, global hungry, alternatives of animal protein, crickets, cell culture, yields, hem.

Focusing only on energy policy it is not enough to head off climate change successfully [1].

The livestock sector is a large source of global greenhouse gas emissions such as carbon dioxide, methan and nutritious oxide. The livestock sector is also a disproportionate user of land and water, and a major contributor to deforestation due to the soya required to produce animal feed. Despite growing evidence that animal agriculture is damaging the planet, the Western diet isn't likely to change anytime soon. In fact, studies suggest rising incomes and urbanization are actually fueling a global dietary shift toward consuming even more meat and dairy in the future. Earth cannot continue to support a population of 7 billion people and 70 billion animals they raise and slaughter each year for food. Meat consumption is growing faster than the overall population.

Over the past few years, a handful of enterprising startups have sprung up with the goal of creating animal-free meat. The scores of companies are developing animal protein alternatives – made from ingredients like insects, plants and yeast – to address these challenges [2].

Using insects instead animal meat can significantly reduce greenhouse gases emission and amounts of require water. For example, students at Rhode Island's Brown University created cricket flour from insects. Moreover, for every hundred pounds of feed, you get 60 pounds of cricket protein – 12 times the average yield from cattle.

Impossible Foods, The Silicon Valley, California, created a completely plant-based burger that actually tastes – and bleeds – like real meat. And the burger is only the beginning. Impossible's scientists already have concept products for chicken, pork, fish, and even a kind of yogurt that is entirely plant based.