can be taken to make the security of the computer stronger. Such actions are called countermeasures. Countermeasures are processes or devices that can stop the threats to a computer or network. A threat is a process that may be malicious and that can be harmful to the information of a computer or network. Examples of countermeasures are personal or application firewalls and anti-virus software. The field of computer security has a growing importance because of the increasing use of computer systems and the Internet.

The importance of computer security:

Information security is one of the most important aspects of integrated security. The information security system must be able to withstand a variety of attacks, both external and internal, automated and coordinated attacks. Sometimes the attack lasts a split second, sometimes probing vulnerabilities is conducted slowly and stretched on the clock, so that suspicious activity is almost unnoticeable. The importance of information security is explained due to two main reasons: the value of the accumulated information resources and the dependency on information technology.

The destruction of vital information, theft of confidential data, outage due to a failure are all results in major economic loss and damages the reputation of the organization. Modern information systems are complex and, therefore, dangerous in themselves, even without malicious activity. Finding new vulnerabilities in software, we have to take into account a wide range of hardware, software and numerous connections between components.

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THE ADVANTAGES AND "SMART HOUSE" SYSTEMS' MAIN CHARACTERISTICS

Today systems of "smart house" or in other words, home automation, allow us to do a lot, from control of light and temperature to control the sound of audio systems and home security and family, using ordinary mobile devices.

For the first time the concept of "smart home" appeared in the 50s of last century. Primal system that can control the situation in the whole house, is the technology Java. Developers of this technology tried to implement it in domestic appliances, thereby making them more "intelligent."

This system coordinates all technical devices that are in the house. Moreover, the control system can be carried out by remote control, and remotely, using modern devices: Iphone, smartphone, tablet, and so on.

Using a computer and internet householder fully manages intelligent systems. State of house can be controlled from anywhere in the world. The main thing is that we must have computer connected with the Internet. We watch CCTV records and, if necessary, the system itself can email reports about the state of the building.

The system of "smart home" solves a lot of issues:1) Automation simplifies and improves our life in a house or apartment, in fact, it saves time and money. Here are some arguments in favor of the creation of the smart home.2) Automation improves efficiency. This applies both to the effectiveness of individual systems in the house and to the efficiency of the entire economy. For example, since the automation system is able to manage multiple devices, we can use single click to disable the thermostat and turn off lights when we decide to go on vacation. There is no need to worry that we forgot to do something. 3) Automation saves our money. Only intelligent lighting control, heating, ventilation or air conditioning can reduce energy costs by 15-20%, according to the developers of automation systems. For owners of the houses there are added uses of innovative heating and cooling, which also dramatically reduces electricity costs and quickly recoup investments in "smart home".4)• Automation makes life more comfortable. The ability to control many electronic devices (lights, heating, audio / video, curtains and door locks, security systems, etc.) with a single touch device on the wall or smartphone, this alone makes us think about home automation. 5) Automation creates comfort. 6) Automation provides peace of mind. The control home devices avoid problems that may arise due to forgetfulness or because of inability. We anywhere can check that everything is fine in our house and, if necessary, be corrected using a smartphone.

In addition to the above-mentioned subsystems, "smart house" has a lot of other support functions. For example, we can automate the system so as to limit the access of children to unsafe elements set lawn watering mode or swimming pool cleaning, laundry include internal and external video surveillance, set up the art work on the necessary regimes, etc.

The system of "smart house" is divided into several independent subsystems:
• Security
• Lighting
• Multiroom
• Climate control

Smart home security system includes items such as alarm, fire detectors and sensors that respond to the fault lines of communication. In the absence of the house's owner fire alarm sensors automatically are turned on and, and in the event of a dangerous situation, whether unwanted intrusion or fire, the system will notify you about it on the deleted program: a mobile phone, tablet or computer.

Lighting smart home controls are all lighting elements objects. If necessary, it will turn off unused at the moment the light source, automatically adjusts the

degree of illumination depending on time of day and even the time of year, and the light turns on as soon as you appear at home. Multiroom system is responsible for the distribution of audio and video throughout the apartment. It can turn on and off appliances, send a signal to all devices, adjust sound, and create optimal conditions for watching videos or listening to music.

Climate control in the "smart home" controls the devices responsible for heating, cooling, cleaning and humidification. After selecting the desired mode, you can configure the system so that it can function properly.

The system of "smart house" makes house more convenient, comfortable and safer. With technical perfection, it simplifies life, while saving time and energy resources.

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THE PROOF OF CONCEPT OF USE OF THE
RANQUE TUBE FOR COOLING AIRCRAFT EQUIPMENT

The problem of heating of the electronic on-board elements of aircraft systems appeared with the advent of electronic equipment. The efficiency of the electronic equipment is low, only a few percent of the total energy supplied to it from the power source is used for signal processing. The rest of the energy is released as waste heat. One of the main factors limiting the size reduction tendency of the electronical equipment casing (computers, radios, cellullar equipment) is the temperature at the operational mode. A large number of electronic components require additional heat removal (cooling), which leads to an increase in the weight and dimensions of the product, which is unacceptable in aviation.

The complex design solutions aimed at reducing the temperature of the radio equipment require significant expenses. During the development of the design of the radio equipment, the cost of development of the cooling subsystems should be kept as low as possible.

With waste heat emission in range of $0.2 - 1$ W/cm^2 the cooling fans are used. At the same time, it is mentioned that there is the possibility of use of the vortex tube (Ranque tube) to increase the intensity of the heat sink. The advantages of this device are its simplicity, small size and the possibility of significantly reducing the cooling air temperature. The main drawback is the low efficiency. At the same time there are no recommendations for the effective use of a vortex effect in the aviation in literature sources.