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## AUTOMATING THE PROCESS OF USING ALTERNATIVE ENERGY IN "SMART HOUSES".

**Abstract:** In this article, the methods of operation of the "Smart House" systems, which are rapidly developing today, the contribution of this system to the use of alternative energy, and other advantages of the system were discussed in detail.

**Keywords:** Smart home, light control system counting people entering the room, wind energy, solar energy, Wi-fi, GSM.

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A smart house, or in other words "Smart house" is a house that includes modern trends of automation of home management, can monitor expenses or other functions of the building for the residents of the house.

For example, a smart home can control lighting systems, multimedia, temperature, security, opening and closing of doors and windows. Energy efficiency is one of the most important issues. Household appliances, air cleaning and cooling (heating) systems and lighting are the most energy

demanding parts of the dwelling. Smart home technology is a good choice for people to manage their above needs and save energy.

The daily increase in the world's population significantly increases energy consumption. As a result, it is becoming clear that civil buildings consume more energy compared to industrial buildings. Providing sufficient energy for the population is the most urgent issue. In this way, increasing the use of renewable, alternative energy is a clear and obvious solution to the problem.

Automation of "smart home" technology to improve energy efficiency is one of the growing trends in the development of world home technologies today. Automation includes the ability to use devices, control energy consumption in a smart home and, as a result, save on energy bills. This is the main advantage of smart home automation technology. Below we will consider other effective and negative aspects of automation of smart home technology.

### **Improving the energy efficiency of "smart houses": achievements and conclusions**

Smart home automation has a number of energy-saving advantages. By using this system, you can save energy consumption to the maximum. The system automatically controls the lighting, ventilation, and heating systems depending on whether there is a person in the house or not. It takes into account the number of people in the house. As a result of this smart work of the system, you can save a lot of money.

There are several ways for homeowners to automate their smart home. One of the most common ways is to use an intelligent thermostat. With the help of this system, the necessary temperature inside the house is realized with the help of minimum energy consumption. In addition, the automatic control system of lighting systems prevents unnecessary flashing of lights. This system is based

on the principle of photodiode operation, and the lights turn on and off at the right time of the day.

Energy efficiency of the "smart house" means optimization of energy consumption inside the house, i.e. intelligent management. By transferring the operation of various energy-consuming systems (household appliances, heating and cooling, lighting systems) to automatic control, considerable energy and money savings are achieved. As mentioned above, these processes have a positive effect on the ecology of the environment.

The principle of operation of the "Smart House" is based on the management of various measuring and monitoring devices, control devices and techniques connected with a wired or wireless connection using the operating system. These devices are usually connected to a central hub, allowing homeowners to control all devices from one place (for example, from an Android phone or tablet).

Smart thermostats are one of several smart home control system devices. These devices allow homeowners to easily control the temperature using tracking sensors and machine control algorithms. This device automatically turns off heating (cooling) systems when there is no one in the house, and when someone comes home, it helps to save a lot of energy as a result of heating (cooling) the most necessary part of the house.

### **Green energy**

The term green energy, as its name implies, refers to energy obtained from natural sources (for example, sunlight, wind, rain, plants, algae, or geothermal heating) that does not have any negative impact on the environment. These energy resources are renewable, that is, they can be artificially restored.

Renewable energy sources have a much lower negative impact on the environment than various petroleum fuels. Green energy sources do not produce harmful substances that destroy the climate (such as greenhouse gases).

During the mining of fossil fuels, grooves appear in a large area underground, as a result of which the world's ecosystem is damaged. Only green energy sources can be used anywhere in the world. Technologies for the development of renewable energy sources have reduced the production costs of solar panels, and wind turbines or other green energy sources have provided mankind with the opportunity to produce energy without harm.

In the "Smart House" system, the house blends in with the surrounding nature as a whole composition. The system adapts to the climate and controls household processes at home by taking in information from the surrounding area. The received information is collected through a central link and processed using mechanisms.

A solar energy collector is a device that receives sunlight and turns it into thermal energy, and a system consisting of a collector that collects the produced energy, a reservoir or cistern that directs energy. The accumulated thermal energy can be converted into mechanical energy, i.e. electrical energy. Energy from the sun produces electromagnetic radiation (infrared, ultraviolet, X-rays). Now a reasonable question arises, how can we use this energy at home? For this we need solar panels that convert mechanical energy into constant electric current. The use of solar energy is especially relevant in Uzbekistan, where there are 300 sunny days.

Installation of modern solar collectors in our country, use of smart home technologies using its energy is fully justified. For this, it is necessary to involve modern technologies. For example, ZIGBEE, RFID, WLAN, BLUETOOTH, IoT, WI-FI devices turn our home into a "smart home".

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