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SMART HOME AUTOMATION

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Artificial Intelligence (AI) has revolutionized the way we live and interact with technology. One of the most exciting applications of AI is in building smart homes. Now, smart homes can be designed with AI to become more convenient, comfortable, secure and energy-efficient than ever before. Here are some examples of building smart homes with AI:

1. Personalized Automation. AI-powered smart homes can learn your habits and routines and automate certain tasks accordingly. For example, your smart home can automatically turn off lights when you leave the room or adjust the temperature when you go to bed;
2. Voice-Controlled Assistance. AI virtual assistants like Amazon Alexa and Google Assistant have made it easier to control your smart home with your voice. You can use voice commands to turn off lights, to adjust the thermostat, or even to play music;
3. Smart Security. AI-powered cameras and sensors can provide advanced security features such as facial recognition, motion detection and intruder alerts. This allows you to keep an eye on your home even when you are away and quickly respond to security threats;
4. Energy Efficiency. AI-powered smart homes can monitor your energy consumption and suggest ways to reduce it. For example, your smart home can automatically turn off lights and appliances when you are not using them or adjust the thermostat to reduce heating and cooling costs;
5. Improved Health and Wellness. AI-powered smart homes can monitor indoor air quality, provide reminders to stay hydrated or exercise and even suggest healthy meal options based on your eating habits.

One of the most surprising AI ways being used in smart homes is through the integration of AI-powered smart mirrors. These smart mirrors use AI and computer vision to provide a range of features, including virtual makeup try-on, health and fitness tracking and even reminders for taking medication.

For example, an intelligent mirror could use AI to analyze your skin and to provide the personalized skincare recommendations based on your skin type and condition. It can also track your fitness progress and suggest workouts based on your goals and fitness level. This level of customization and personalization

through AI technology is what makes smart mirrors such a unique and innovative application of AI in smart homes.

It's amazing how AI is able to take something as simple as a mirror and turn it into a multi-functional device that can help to improve our health, beauty and well-being. This shows how much AI potential has to change the way we live and interact with technology in our homes.

Another exciting application of AI in building technology is its use in designing and building green homes. The aim of green homes is to minimize their environmental impact by using renewable energy sources, by reducing waste and maximizing energy efficiency [4]. These homes with AI can be designed to be even more environmentally friendly and sustainable.

For example, AI can be used to monitor and to optimize the energy usage in green homes. It can analyze data from sensors and devices to determine the most energy-efficient way to operate the home, such as adjusting the temperature, lighting and appliance usage. AI can also help to track and to monitor water usage, waste production and greenhouse gas emissions, providing insights and recommendations on how to reduce these environmental impacts.

In addition, AI can also be used to monitor and to optimize the growth of plants in green homes, such as in indoor gardens or on green roofs. For example, AI-powered sensors and cameras can monitor the health and growth of plants, provide real-time data on light, water and temperature conditions, and make recommendations on how to optimize these factors for plant growth.

The use of AI in building green homes is an exciting development that has the potential to make a significant impact on reducing our environmental impact. By providing insights and recommendations on how to operate homes in a more sustainable and environmentally friendly way, AI has the potential to help the creation of greener and more sustainable future.

A smart home can offer the convenience and the control over household devices, and it is very important to consider the potential security risks that come with connecting devices to the internet [2]. Some common security issues in smart homes include:

1. Hacking. Unauthorized access to your home's network can result in a security breach and compromise sensitive information;
2. Vulnerabilities in devices. Smart devices can contain vulnerabilities that can be exploited by cybercriminals;
3. Insufficient passwords. Weak passwords make it easy for hackers to gain access to your network and devices;
4. Automatic updates. Smart devices often receive automatic software updates, but if a malicious update is released, it can compromise the security of the entire network.

To prevent these issues, it's important to research the security measures of any devices you plan to purchase and to take steps to secure your home's

network, such as using strong passwords and regularly updating device software. Additionally, it is necessary to consider the purchasing devices from reputable manufacturers that have a proven track record of providing secure products.

Smart homes are revolutionizing the way we think about building design and construction. The traditional model of designing and building homes involved the creation of static, unchanging structure that was intended to exist for decades or even centuries [1]. However, with the rise of smart homes, the design and construction of buildings are evolving to incorporate the latest technology and connectivity features.

The process of developing buildings is becoming more complex now, that is why architects and builders must consider not only the physical design of the building but also the integration of smart home technology. Designers and builders must work together to ensure that the building is satisfied with the latest technologies, including smart thermostats, security systems and home automation systems. This requires a deep understanding of the latest technology and how it can be incorporated into the design of the building.

The use of smart homes is also changing the way we think about energy consumption and sustainability. With smart home technology, homeowners can monitor and manage their energy usage in real-time, allowing them to make informed decisions about how they use energy. This can lead to significant reductions in energy consumption, resulting in lower utility bills and reduced carbon footprint.

Smart homes are also changing the way we think about the long-term maintenance and upkeep of buildings [3]. With the ability to remotely monitor and control devices within the home, homeowners can quickly identify and address issues before they become major problems. This can lead to a longer lifespan for the building and reduce the need for expensive repairs and renovations.

The development of smart homes is transforming the way we think about building design and construction. The integration of the latest technology and connectivity features into building design requires a deep understanding of the physical structure and the latest technology. As smart homes become more commonplace, we can expect to see a shift towards more sustainable, efficient and connected buildings that are designed to exist for centuries.

Summing up the above mentioned information we can state that now AI is helping to build smart homes that are more convenient, comfortable, secure and energy-efficient than ever before. Smart homes with AI are becoming smarter and more personalized, making our lives easier and more enjoyable.

References

1. Kevin Daum. Building Your Own Home For Dummies. New Jersey: For Dummies, 2021, 400 p.