The impact of smart houses in reducing carbon emissions

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Abstract

Introduction: The feasibility of smart homes is becoming more realistic as smart home technologies and wireless capabilities mature, as well as increased accessibility due to widespread internet availability

Objectives: To understand the present state of smart home technologies so that numerous benefits can be derived for the user, the environment, and the business

Methodology: We developed an understanding of the existing research from Government records and websites and knowledge through a literature review

Results: The study results state that the potential energy savings from smart buildings are significant. Basic automated building controls can save 10-15% of energy in commercial buildings

Introduction

- In a study, it was found that one-third of all the world's CO_2 emissions are the result of household energy consumption.
- Reducing per capita energy consumption in houses could reduce CO_2 emissions.
- Innovative home technologies are gadgets that offer digitally linked, automated, or upgraded services to household inhabitants
- The SHTs are designed with cross-cultural human values in mind, and they are not envisioned as standalone products but rather as components of a functional system addressing societal challenges
- This study analyzed the impact of intelligent houses on reducing carbon emissions in Ontario, Canada.
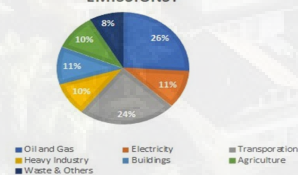
Methodology

- We aimed to gain a broad understanding of the impact of reducing carbon emissions as well the current state of the smart home industry.
- We developed an understanding of the existing research and knowledge through literature review.
- It also helped us to identify the key stakeholders who have an impact on the user.
- The study was based on secondary data collected from government records and websites.
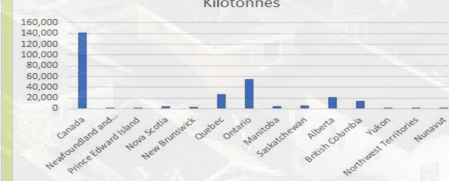

Analysis

- Smart houses are the best tool to reduce carbon emissions. Digital systems control the mechanical and electrical equipment in intelligent houses.

- Research suggests that the adoption of SHTs meets sustainability goals toward a low-carbon, climate-resilient future

WHO IS RESPONSIBLE FOR CANADAS GHG EMISSIONS?

26% · 11% · 24% · 10% · 11% · 10% · 8%

Oil and Gas · Electricity · Transporation · Heavy Industry · Buildings · Agriculture · Waste & Others

Total Household Green House Gas Emission per Kilotonnes

Results

- Energy Consumption and Management' sector of the smart home, which we have focussed on as it has direct benefits to environmental sustainability.

- The potential energy savings from smart buildings is significant. Basic automated building controls can save 10-15% of energy in commercial buildings

- More advanced functionality, such as demand-controlled ventilation, can save an additional 5-10% in energy.

Conclusion and Discussion

- Smart buildings inside a smart grid can help with load shifting, increasing energy efficiency, and lowering electricity usage, but they can also help reduce CO_2 emissions
- Most of the GHG emissions in the building sector are locked into existing homes and buildings; the importance of retrofitting homes and buildings for lowering GHG emissions is critical

Reference

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