Homes 3.0

Intelligent. Intuitive. Integrated.

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Introduction

Homes 1.0

Houses built with foundational methods, providing shelter and comfort without modern technologies or sustainability features.

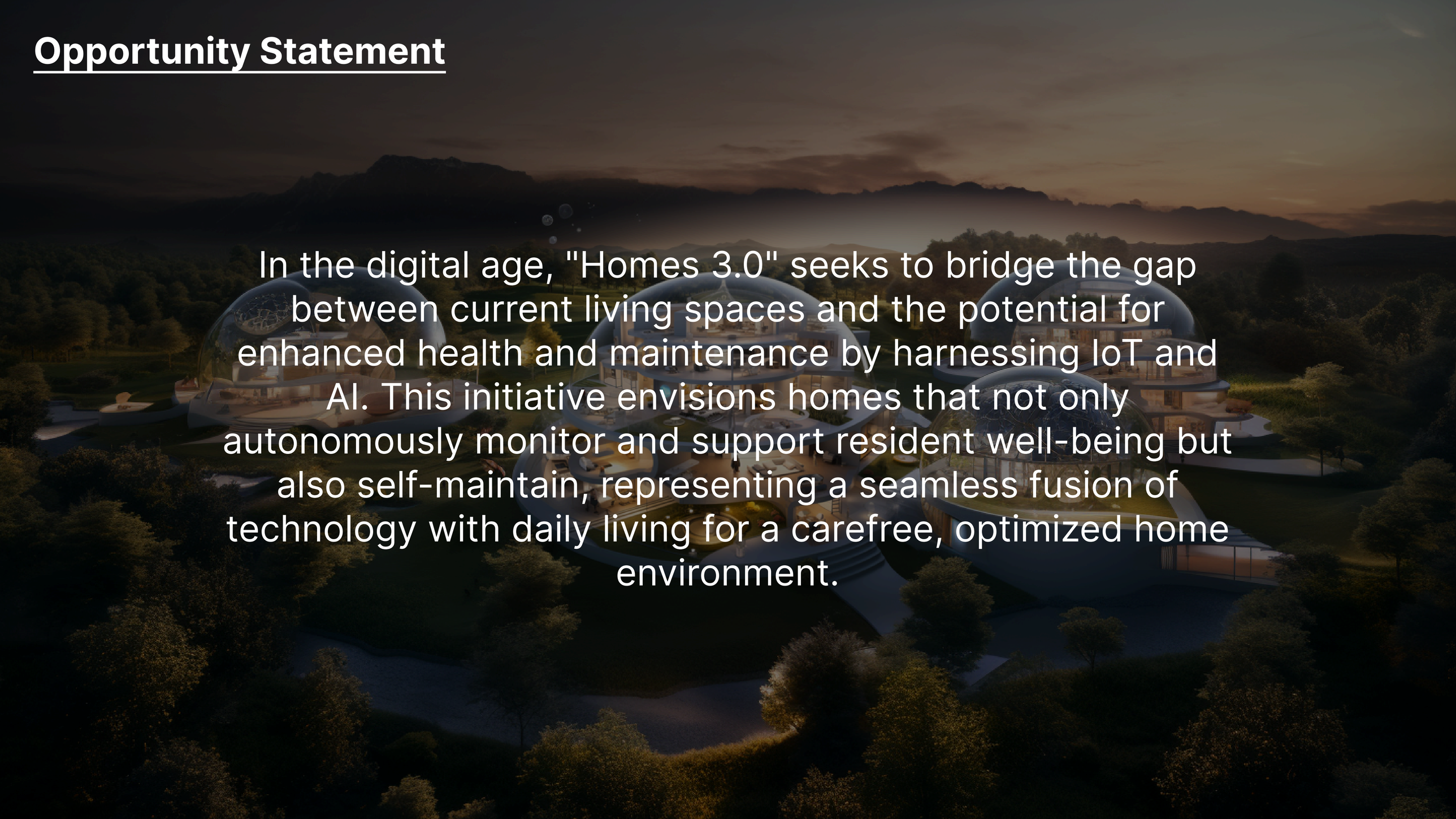
Homes 2.0

Advanced, eco-friendly residences incorporating smart technology and sustainable design for enhanced efficiency and living experience.

Homes 3.0

Autonomous, self-sustaining homes with AI-driven systems, advanced biotech materials, and fully integrated life-support ecosystems.

Opportunity Statement



In the digital age, "Homes 3.0" seeks to bridge the gap between current living spaces and the potential for enhanced health and maintenance by harnessing IoT and AI. This initiative envisions homes that not only autonomously monitor and support resident well-being but also self-maintain, representing a seamless fusion of technology with daily living for a carefree, optimized home environment.

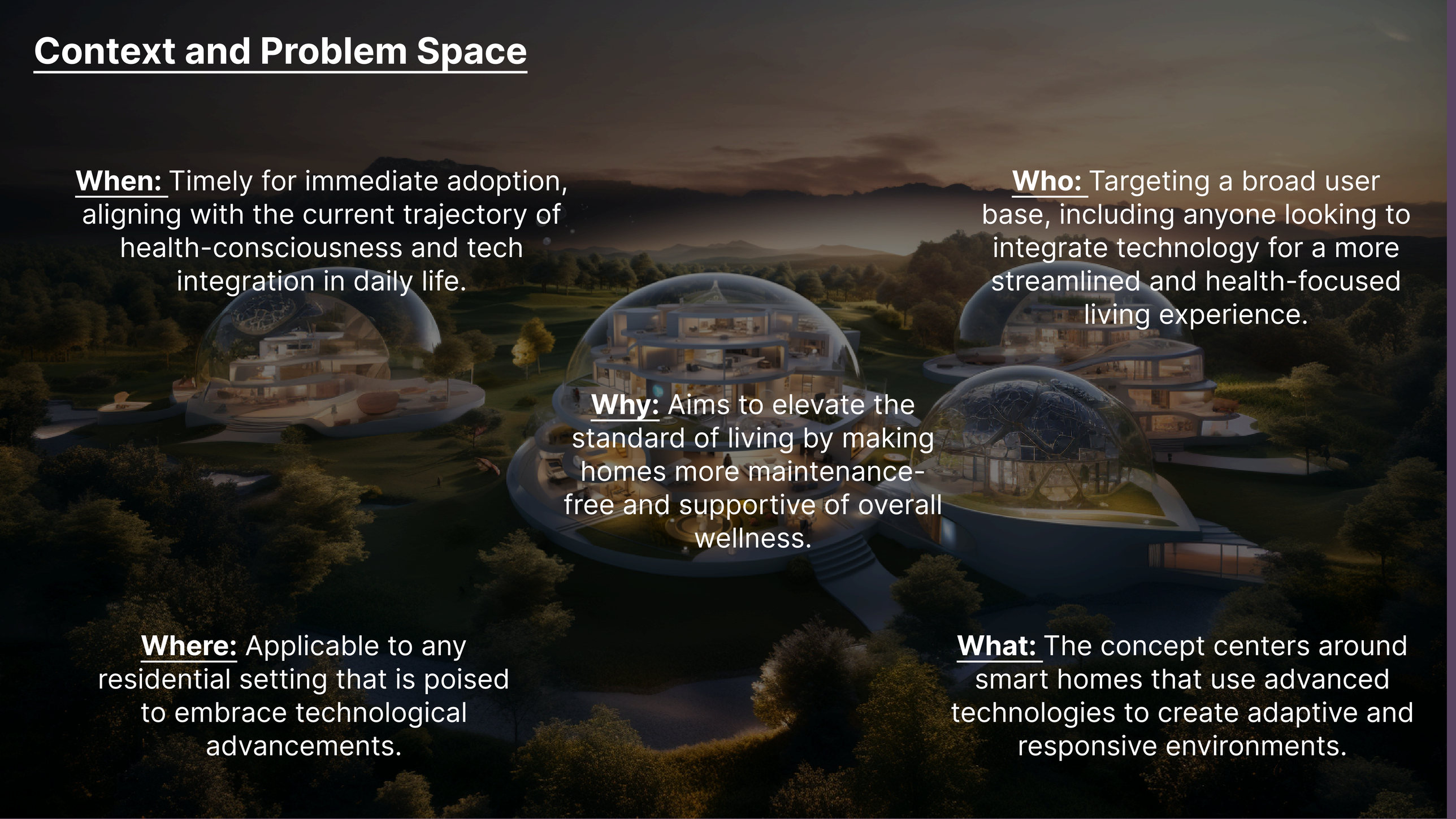
Problem Description

Today's living spaces do not fully embrace the potential of smart technologies to enhance residents' well-being and simplify home management. This gap presents an opportunity to develop intuitive homes that autonomously adapt to improve occupants' daily lives.

Context and Problem Space

When: Timely for immediate adoption, aligning with the current trajectory of health-consciousness and tech integration in daily life.

Who: Targeting a broad user base, including anyone looking to integrate technology for a more streamlined and health-focused living experience.



Why: Aims to elevate the standard of living by making homes more maintenance-free and supportive of overall wellness.

Where: Applicable to any residential setting that is poised to embrace technological advancements.

What: The concept centers around smart homes that use advanced technologies to create adaptive and responsive environments.

Technological Trends

Future homes will be seamlessly integrated with smart technology to create living spaces that are more comfortable, efficient, and secure. This goes beyond just connecting various appliances and systems to the internet. In these future smart homes, AI will play a central role. (Frey)

Artificial intelligence continues to improve, understanding commands better and responding in more relevant ways. AI in smart homes helps residents play music, update their to-do list, turn lights off and on and much more (Hirt)

Today, 44.4% of households interact with a smart home device every month, and this number is projected to increase to 48.8% by 2025. (Volodymyr Korolevych)

Societal Trends

Many people want the same things as they get older: to stay in their own homes, to maintain independence for as long as possible, and to turn to family and friends for help when needed. (Aging in Place)

And the global remote patient monitoring systems market is projected to be worth over $1.7 billion by 2027, up nearly 128% from the $745.7 million opportunity the market currently represents, according to Research and Markets. (Insider Intelligence)

According to new census data from Statistics Canada (StatCan), the number of homes shared by multiple generations of a family, two or more families, or one family living with unrelated individuals has grown by 45% the past 20 years. (Erin Nicole Davis)

Environmental Trends

Smart-home devices don’t just make it easier to close the garage door or secure your home. They can also help you save energy and money, if you use them properly. And seeing how Americans spend $130 billion a year on wasted energy, people can use all the help they can get. (“How to Save Money and Energy with Smart Home Devices”)

Forty-seven percent of energy use is consumed by heating and cooling. The passive concept is building projects in which heating systems, other than post-air heating, are unnecessary, consequently reducing greenhouse gas emissions. (Willems)

Scope

Develop a smart home system prototype that leverages modern technology to enhance the quality of human living conditions within our living spaces.

Approach


Phase 1:
Problem/
Opportunity
Framing
Phase 2:
Research and
Design Concept
Direction
Proposal
Phase 3:
Product/System/
Service Design
Solution
Development
Phase 4:
Product/System/
Service
Refinement and
Development
Final
Submission

Approach Continued

Phase 1: Problem/Opportunity Framing

Step 1: Identify the Problem Space
Step 2: Research
Step 3: Develop a Design Brief
Step 4: Define Constraints and Success Criteria
Step 5: Prepare Presentation

Phase 2: Research and Design Concept Direction Proposal

Step 1: Deep Dive Research
Step 2: Synthesize Findings
Step 3: Develop Design Concepts
Step 4: Present Research and Concepts

Phase 3: Product/System/Service Design Solution Development

Step 1: Select a Design Direction
Step 2: Prototype Development
Step 3: User Testing and Feedback Integration
Step 4: Refine Prototype
Step 5: Documentation

Phase 4: Product/System/Service Refinement and Development

Step 1: Refine Design Solution
Step 2: Final Prototyping
Step 3: Prepare Final Presentation
Step 4: Client-Facing Presentation
Step 5: Presentation Rehearsal

Phase 5 :Complete Final Submission and Present

Constraints

Known Constraints

- Technological limitations
- Regulatory and Compliance Issues
- Cost and Budgeting
- Material Limitations
- Time frame
- Skill level
- Cost implications for advanced system integration

Unknown Constraints

- Unforeseen Technological Developments
- User privacy and data security concerns.

Success Criteria

Must: The solution must improve the residents' health and reduce maintenance efforts.

Should: Ideally, the system should be affordable, scalable, and adaptable to various living environments.

Could: The system could learn and adapt to individual user habits and preferences over time.

Sources

Frey, Thomas. “11 Thoughts on Designing Homes for 2040 and Beyond.” Futurist Speaker, 27 July 2023, futuristspeaker.com/future-trends/11-thoughts-on-designing-homes-for-2040-and-beyond/#:~:text=AI%20Smart%20Home%20Integration,will%20play%20a%20central%20role. Accessed 4 Nov. 2023.

Hirt, Meredith. “10 Smart Home Trends This Year.” Forbes, 12 Sept. 2023, www.forbes.com/home-improvement/internet/smart-home-tech-trends/:~:text=Artificial%20Intelligence%20and%20Internet%20of%20Things&text=Artificial%20intelligence%20continues%20to%20improve,and%20on%20and%20much%20more. Accessed 4 Nov. 2023.

“US Smart Home Statistics (2018–2027) [Updated Jun 2023].” Oberlo.com, 2018, www.oberlo.com/statistics/smart-home-statistics#:~:text=The%20latest%20smart%20home%20statistics,were%20using%20smart%20home%20devices. Accessed 4 Nov. 2023.

Volodymyr Korolevych. “The Future of Smart Homes – What Does It Look Like?” Om Wave, OM Wave, 22 Sept. 2022, omwavehome.com/featured/the-future-of-smart-homes/. Accessed 4 Nov. 2023.

“Aging in Place: Growing Older at Home.” National Institute on Aging, U.S. Department of Health and Human Services, www.nia.nih.gov/health/aging-place/aging-place-growing-older-home#cost. Accessed 4 Nov. 2023.

Insider Intelligence. “The Technology, Devices, and Benefits of Remote Patient Monitoring in the Healthcare Industry.” Insider Intelligence, 19 Jan. 2023, www.insiderintelligence.com/insights/remote-patient-monitoring-industry-explained/. Accessed 4 Nov. 2023.

Erin Nicole Davis. “Canada’s Multigenerational Homes Have Increased by 45% in 20 Years.” STOREYS, STOREYS, 27 July 2022, storeys.com/canada-multigenerational-homes-increased-20-years-statcan/. Accessed 4 Nov. 2023.

“How to Save Money and Energy with Smart Home Devices.” The New York Times, 2023, www.nytimes.com/wirecutter/blog/smart-home-devices-save-money-energy/. Accessed 4 Nov. 2023.

Willems, Damien. “Council Post: Passive Houses: The New Normal in the Architectural Industry.” Forbes, 28 May 2021, www.forbes.com/sites/forbesbusinesscouncil/2021/05/28/passive-houses-the-new-normal-in-the-architectural-industry/?sh=2ba3e0005dd0. Accessed 4 Nov. 2023.

Thank you