

Map-view for SmartThings App

Ux research | Ux-Ui design | Interaction design

Company Samsung R&D institute, Bengaluru, India

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My Role Design Researcher, Ui-Ux designer

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Background

Samsung's SmartThings that acts as a central hub for managing and controlling smart home devices and Internet of Things (IoT) products. It enables users to connect, monitor, and automate a wide range of smart devices within a single interface, offering convenience and integration across various brands and ecosystems.

Problem

Samsung identified that as the number of connected devices in a home increases, users struggle to identify and manage these devices efficiently. To address this challenge, they aimed to leverage Map View technology—a digital twin solution designed to help users navigate and control devices within their spaces more effectively.

Goal

Design use cases, utilize them to create features and create high fidelity prototypes of the solutions following Samsung's existing guidelines

Design Brief

Reimagine SmartThings as a virtual representation of your real home, incorporating the concept of Map View, Design use cases and features that leverage this digital twin technology to enhance user navigation, control, and interaction with connected devices seamlessly and intuitively

Design process

Immerse

Understanding SmartThings App

- Navigation and user journey
- Competitive analysis

Understanding Map-view feature

- Map-view applications
- Types and complexity

Map-view generation methods

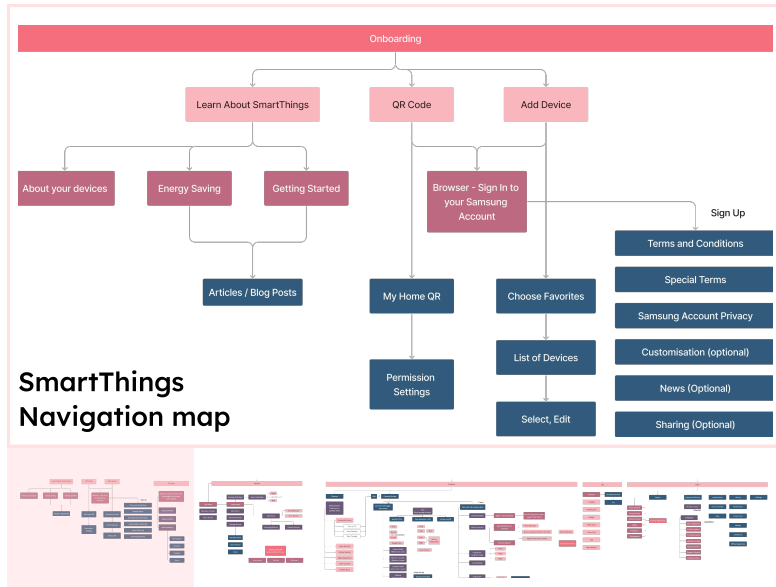
- Methods of generating mapview used by the existing platforms

User survey

- Google form survey conducted among smart home users living in the USA

User interview

- Provided people an option to be a part of the study in the survey and approached them later for in depth interview and cognitive walkthrough task



Applications for Map-View

- Device Monitoring & Control: Visualize and manage devices and resources in real-time (e.g., Ring, SmartThings).
- Space Optimization: Enhance resource allocation and space utilization (e.g., ONES, ESRI).
- Energy Efficiency: Monitor energy usage and optimize workflows (e.g., Smart Office, ESRI).
- Maintenance & Repairs: Simplify troubleshooting with system roadmaps (e.g., UCSF Health).
- Productivity Tools: Support bookings, asset tracking, and workflow management (e.g., ONES, Smart Office).

Online survey

Out of 35 people that responded to the survey

- Apple was the most used smart device brand followed by Google, Samsung, Amazon, Bosch and Philips
- Top 5 considerations people have in mind before buying a smart device- compatibility, specifications, price, quality and brand name
- 31% have more than 6 smart devices
- 40% use more than one app to control their smart devices
- Almost everyone prefers to control their smart device hub from their mobile phones

User Interviews

We did 5 in-depth interviews with a cognitive walkthrough task to understand

- Preferred app and commonly used devices
- Tech behaviour and habits
- Needs

Recruitment

Asked respondents of the survey if they wanted to be a part of the study, and reached out to interested people

Participants demographic

- Families of more than 2 members
- Age range- Adults 18+
- Location- USA
- No. of smart devices- 6+

Interview information

- Interview duration- 30mins
- We asked a few questions to get familiar with their smart home set up
- Then we asked them to walk up through one of the routines they have set up

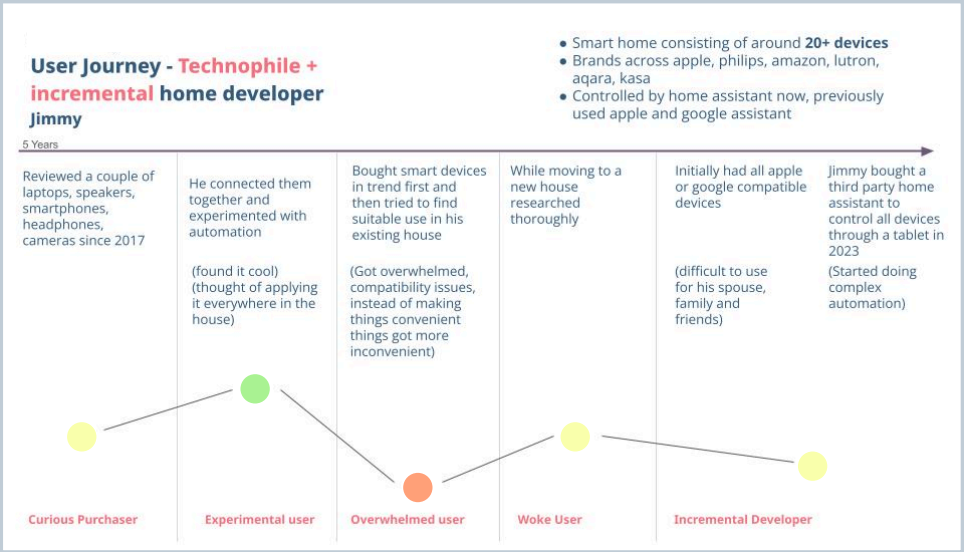
Personas, user journey and Emotional mapping

- Using data from the interview created user persona and mapped emotions experienced throughout the journey

Affinity mapping

- Picked themes from the journey and grouped them under one umbrella theme

How might we statement and scenarios





Venkat Kumar

- Age: 42
- Location: Cupertino, USA
- Occupation: Software Engineer
- Tech Proficiency: Advanced

Curious Persistent Frustrated

Background

Venkat is a tech enthusiast and early adopter who started transitioning his home into a smart home in 2017. His curiosity and love for experimenting led him to gradually integrate smart devices like lighting, door locks, thermostats, a smart TV, and a smart refrigerator.

Goals

- Create a fully connected and efficient smart home ecosystem.
- Simplify smart device automation for ease of use by all family members.
- Reduce the effort required to research and integrate new devices.

Tech Behavior

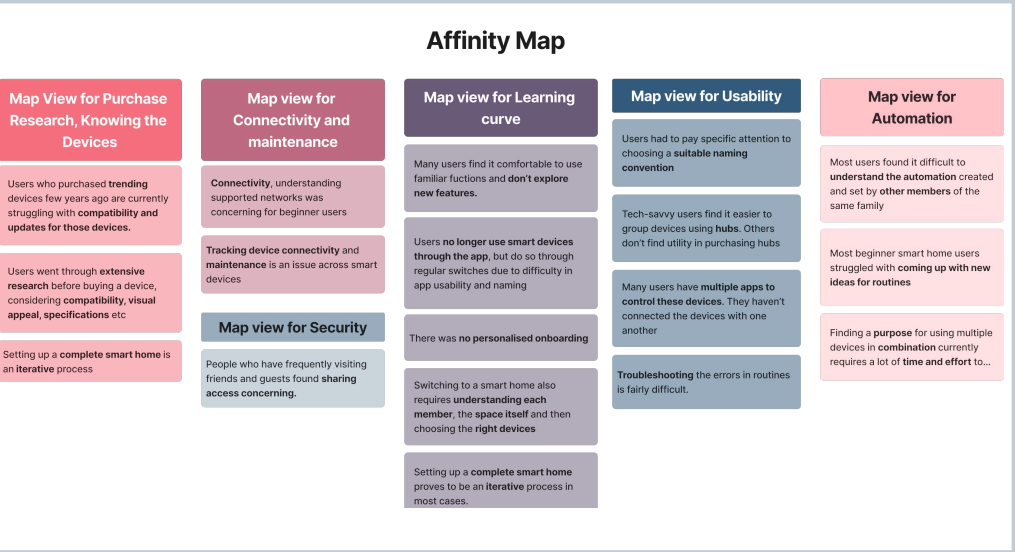
- Usage: Regularly uses and maintains smart devices.
- Buying Decisions: Relies on extensive research to ensure compatibility.
- Engagement: Looks for solutions that simplify and streamline smart home automation.

Pain Points

- Complex Setup: Managing multiple hubs for different device types causes confusion.
- Limited Interoperability: Some devices don't work seamlessly within the same system.
- Research Fatigue: Extensive effort is needed to evaluate compatibility before purchasing new devices.
- Exclusive Knowledge: Only he understands and can manage the automation setup.
- Unrewarding Experience: The effort required outweighs the perceived benefits

Needs

- A unified platform or hub that integrates all smart devices.
- Better interoperability among devices from different brands.
- Simplified device setup and automation for ease of use by the entire household.
- Support or tools to make informed purchasing decisions.



How might we utilize Map-view for

Personalisation

Seasonal Environments

Purchase Research

Connectivity and Maintenance

Exploring New Features

Understanding Automations

Use cases

Technophile users

Non-tech savvy users

Incremental home improvers

Assisted living users

Possibility mapping

- Brainstormed possibilities around major themes

Kano model

divided possibilities in

- Exciters
- Wants
- Basic

Moscow model

divided possibilities in

- Must have
- Should have
- Could have
- Won't have

Ideation sketches and wireframes

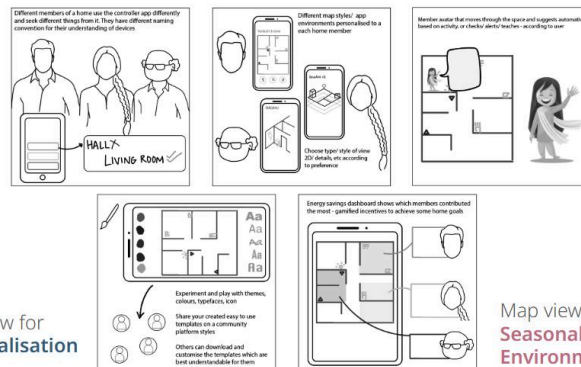
Ideation

Possibility map



Ideation

Scenarios (storyboards)



Map view for Personalisation

Map view for Seasonal Environments

Ideation

Kano Model

Exciters

- EOY Review - view/browse missed features
- Guide character changes according to current affairs
- Personalised interface/app environment
- Different interfaces according to time/month
- Character/ Avatar
- Smart home for festival times

Wants

- 2D, 3D, Detailed view- Choose
- Image Based Explore
- Learning interface - no real time change
- Troubleshoot runtime/ logic errors on Map
- Categorising information
- Colour coding/ grouping
- Energy Analysis representation
- Personalised suggestions based on activity

Basic

- Assign member roles and access
- Servicing Reminders
- Interactive pop-up for stacked devices
- On Screen Working Tips
- User Profiles
- Customised device naming in each phone

Solution iteration 2

Map

Background - F6F6F6
Popups - D8E6F6

PRIMARY COLOURS



SECONDARY COLOURS





Create

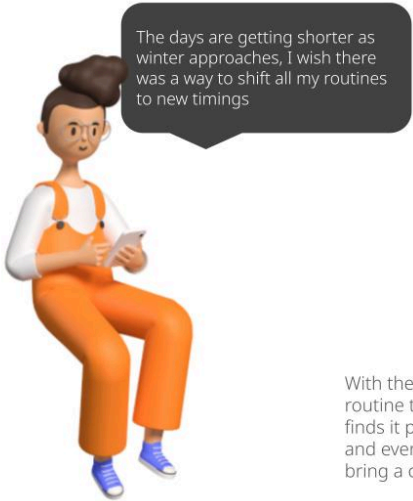


Prototype (lo-fi)

Feedback from Samsung Team

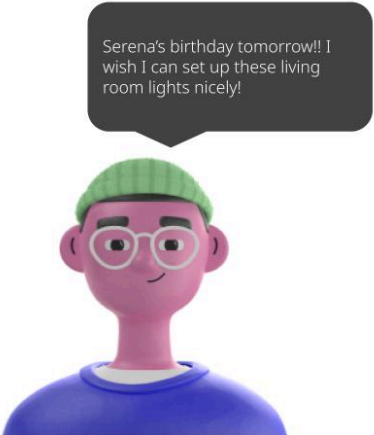
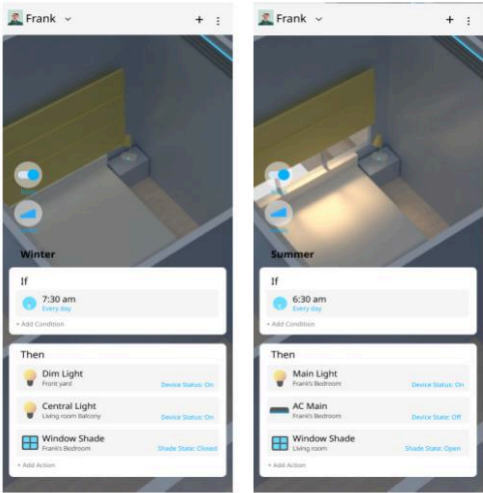
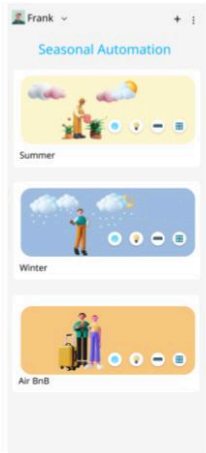
Final prototype

As a team we developed 7 features leveraging Map-View and created high fidelity video prototypes for each. The two presented here were my contributions.



With the change in weather and seasons, everyday routine timings also needed to be changed. Jessica finds it painstaking to individually edit her morning and evening automations every time she wishes to bring a change in her daily routine.

Seasonal Automation



The smartThings app helps Luke with pre-set automations for special occasions like parties, festivals and even romance! All created with the family's existing set of smart devices.

Festive Automation

