Waste Management

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Five steps:

1. Empathize
2. Define
3. Ideate
4. Prototype
5. Test

EMPATHIZE:

The main moto of this is to understand the need of urban residents and government workers involved in waste management

→ Identify problems like improper waste collection lack of recycling education among the people limited infrastructure and dangerous water disposal.

→ Conducting surveys with sanitation workers to understand how residents can better segregate waste to help more their work saver.

→Observe the waste collection and observe their day to day tasks and safety concern's and how their can be safer

DEFINE:

The moto of this is to clearly describe and understand the problem based on the fielding from the empathize phase

- Define the primary challenges faced in urban waste management like poor infrastructure lack of citizens , interaction and segregation of waste

- We must divide the problem down into specific areas

- Improve household waste segregation

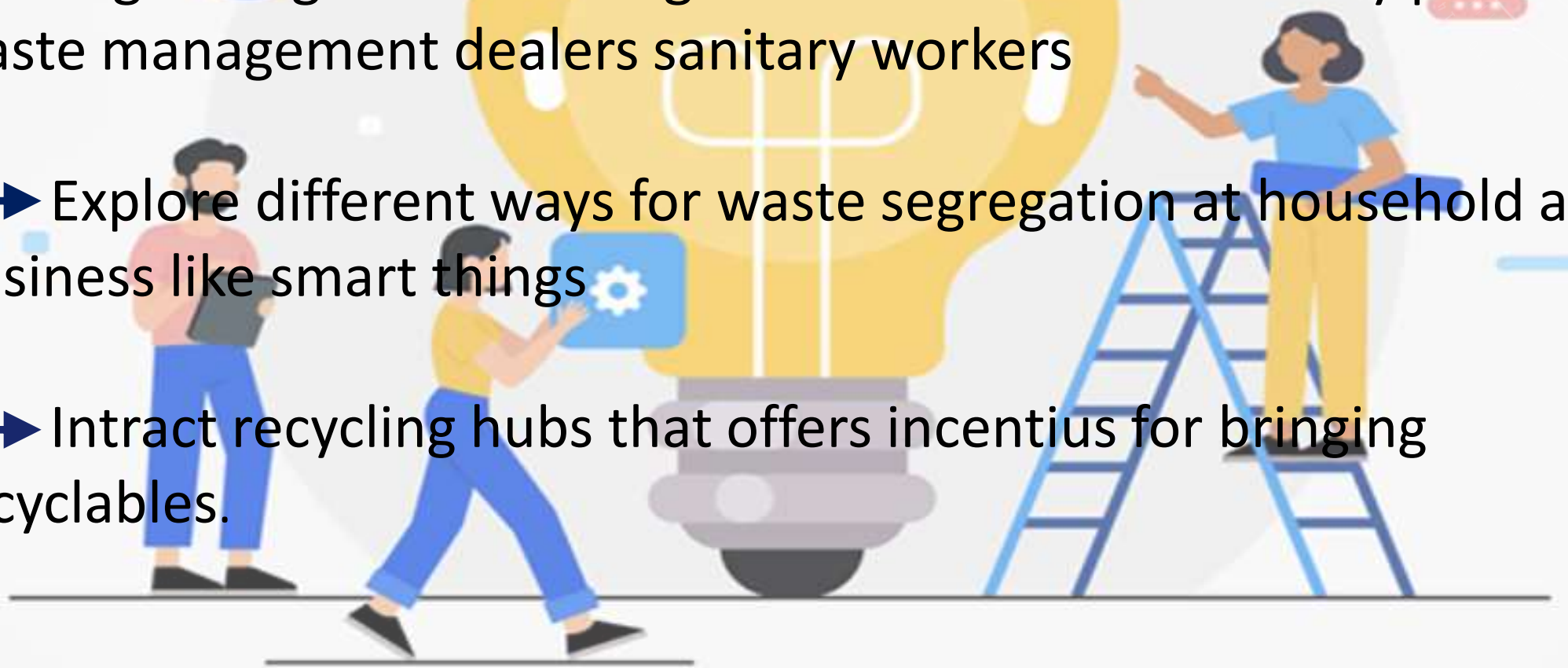
IDEATE:

Creative solution to address the problem statement

→ Organizing brainstorming sessions with residents city planners waste management dealers sanitary workers

→ Explore different ways for waste segregation at household and business like smart things

→ Intract recycling hubs that offers incentius for bringing recyclables.



PROTOTYOE:

- Our objective here is to build a basic low cost version best ideas to test and gather feedback for implementation.

- Developing a prototype of the smart bin equipped with sensors to detect different types of wastes.

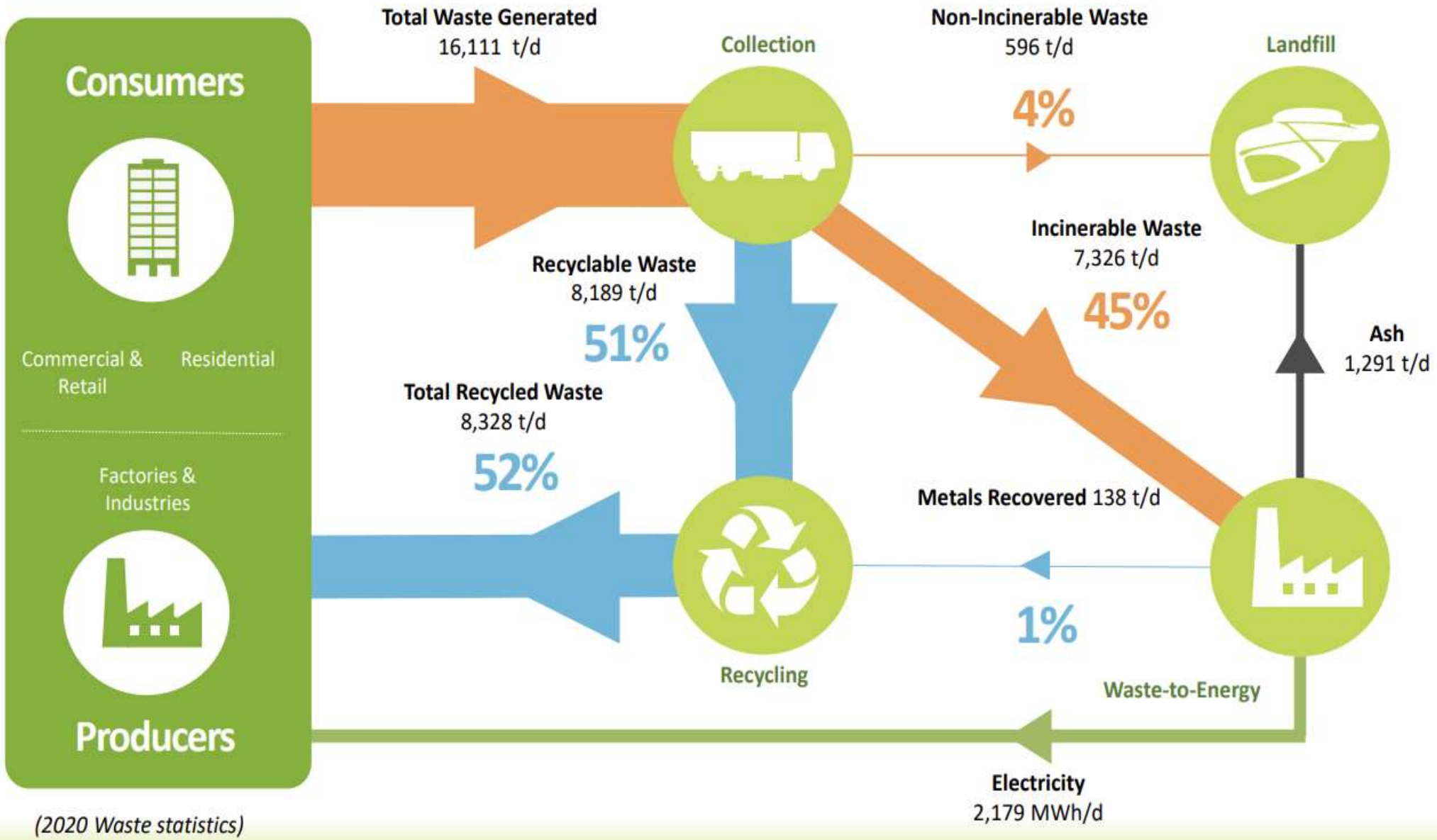
- Testing different routes for waste collection.

TEST:

Here we test the prototypes with citizens and sanitary workers gather feedback refine citizen.

- Provide the smart bins in a few city distincts to moniter their performance.
- Collect data on waste reduction recycling ideas.
- Get input from sanitary workers.

Singapore's Waste Management System

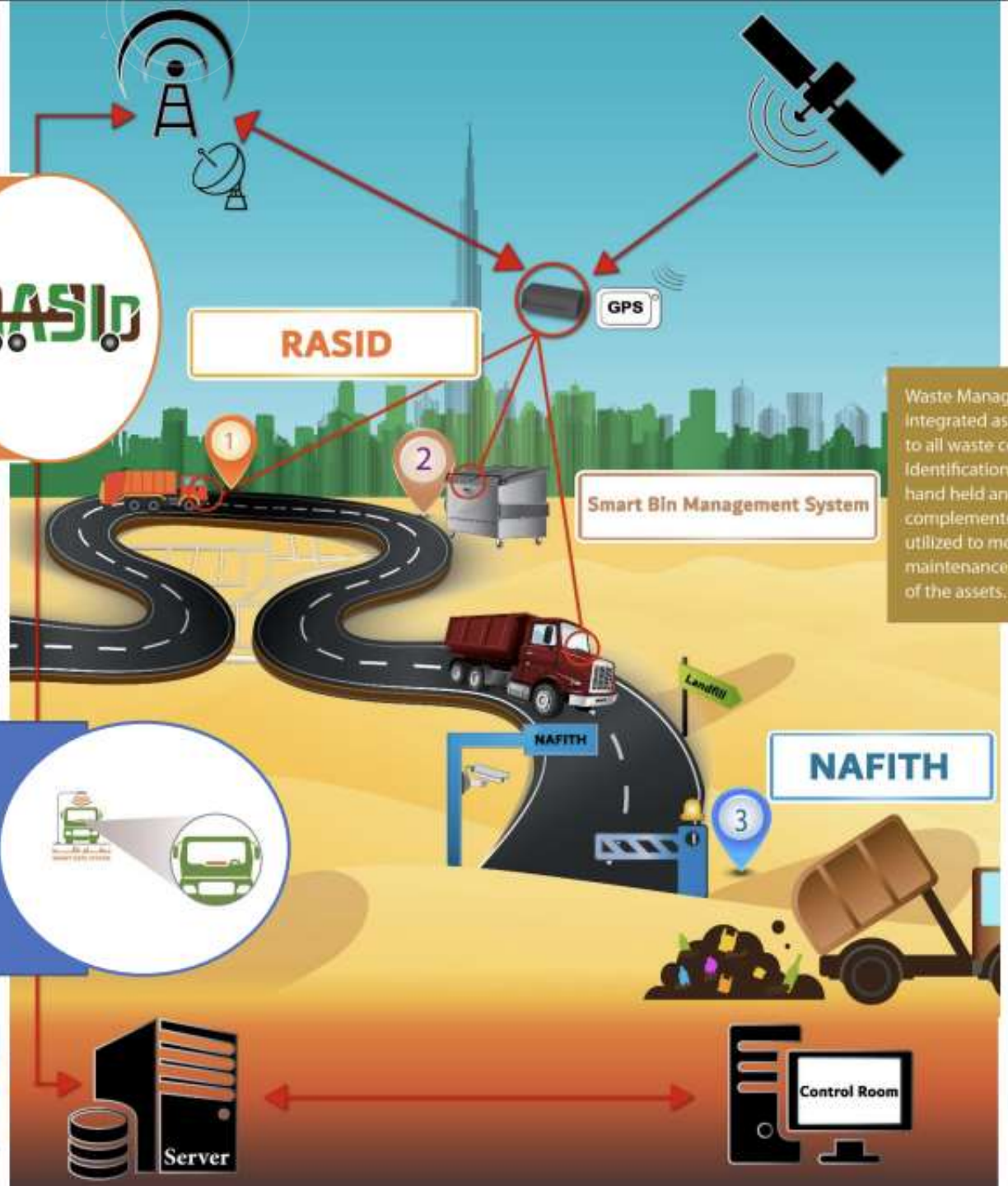


(2020 Waste statistics)

بلدية دبي
DUBAI MUNICIPALITY

A customized system that provides an easy, scalable and powerful tool to regulate, monitor and manage registered waste management companies. Authorities and stakeholders can access statistics and real-time status online to aid efficient process management. Additional information includes the GIS mapping of locations, geo-coding of waste categories/dump yards.

RASID



Waste Management Department has a fully integrated asset management system applied to all waste containers. Radio Frequency Identification (RFID) technology, automated hand held and on board vehicle readers complemented by interactive software is utilized to monitor location profile, maintenance, field replacement and retirement of the assets.

Smart Gate System (NAFITH) is a fully automated entry management system at Dubai Municipality landfill sites. Radio Frequency Identification (RFID) technology, Automatic Number plate recognition (ANPR) and smart software are used to control entry of vehicles to the sites gather weight information and automatic credit deduction.

Dubai Chamber Sustainability network

Dubai Waste Management Centre (DWMC)

1.9
Million Tonnes
waste to be converted into renewable energy annually

200
MW/h
renewable energy that will be produced

5
Burning Lines
in order to receive 5,666 tonnes per day

135+
Thousand Households
can be powered with the energy produced

1000
Trucks
will be received per day

1000
Tonnes of Bottom Ash
from incinerated waste which will be recycled and used in infrastructure projects.

400,000
m²
Total Size of the Area

32%
Energy efficiency rate
at 27°C

12,480
Filters
to fully address all emissions

2,760
m³/day
amount of Recycled Water that will be used from Warsan STP

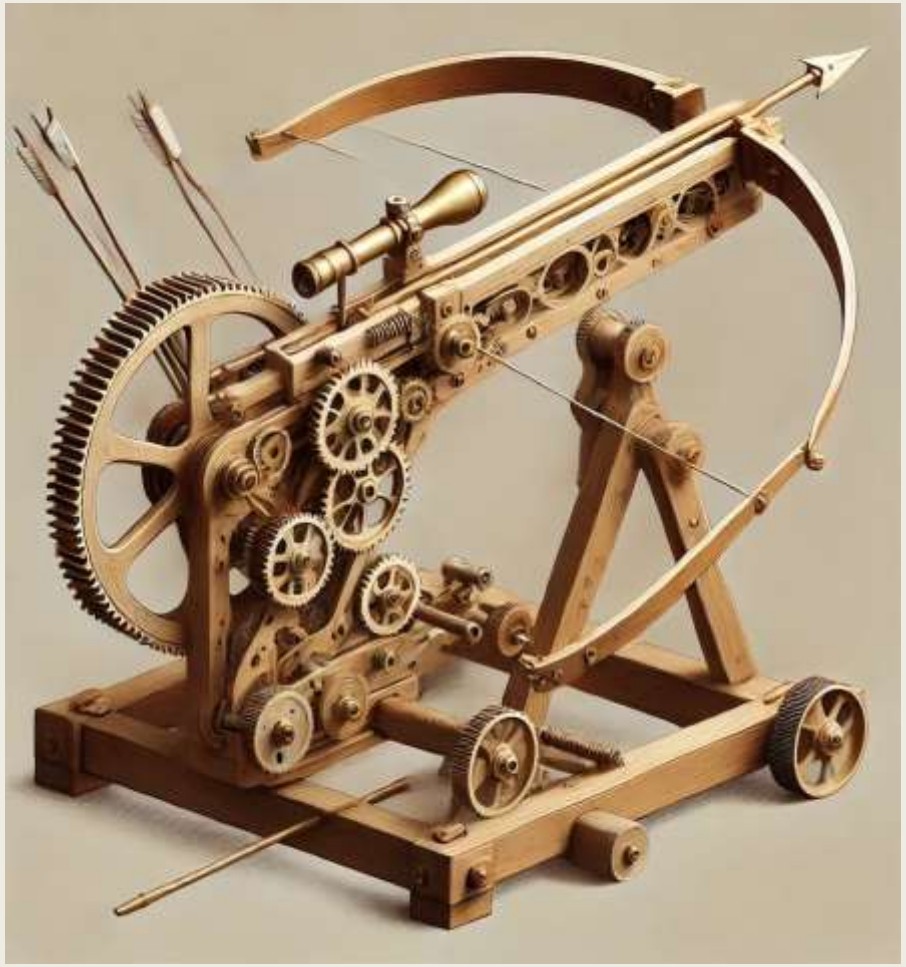
THE ANCIENT GREEK POLYBOLOS

The world’s first repeating crossbow

Raja (24241a0531)
Rakesh (24241a0536)
Harsha(24241a0501)
Varshith (24241a0544)

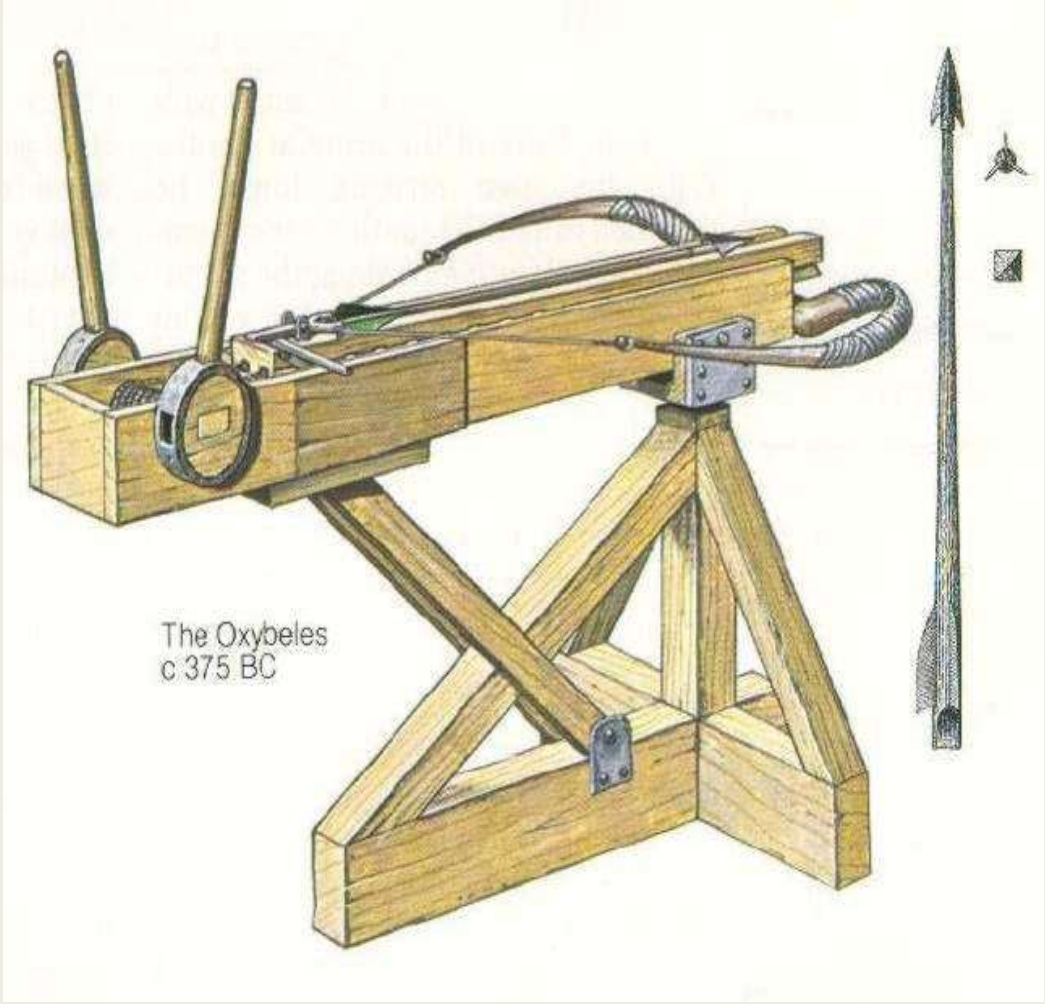
Introduction

- The polybolos was an ancient Greek repeating ballista, a type of siege weapon.
- Invented around the 3rd century BCE by the engineer Dionysius of Alexandria.
- Unlike standard ballistae, the polybolos could shoot bolts automatically using a chain mechanism.
- Regarded as the first known example of a repeating weapon.



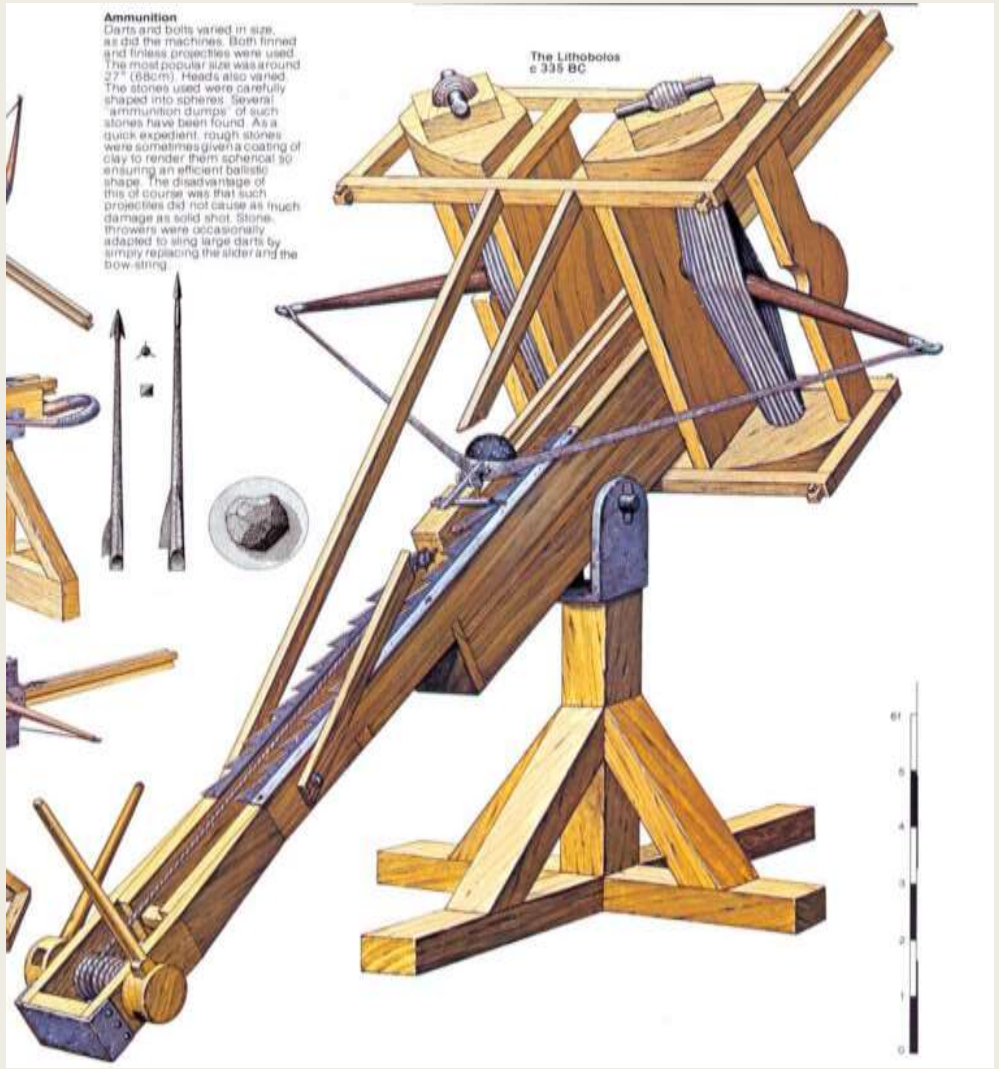
Mechanism and functionality

- Operated using a crank-and-chain system powered by hand.
- Bolts were fed into the machine through a magazine, allowing continuous fire.
- Used a ratchet system to draw back the bowstring and release it.
- Could fire multiple bolts per minute, making it highly effective in sieges.



Historical use and challenges

- Primarily used in sieges to attack fortifications and enemy troops.
- Gave Greek armies a significant technological advantage.
- Challenges:
- Expensive and complex to build.
- Maintenance required skilled operators.
- Limited widespread adoption due to resource constraints.

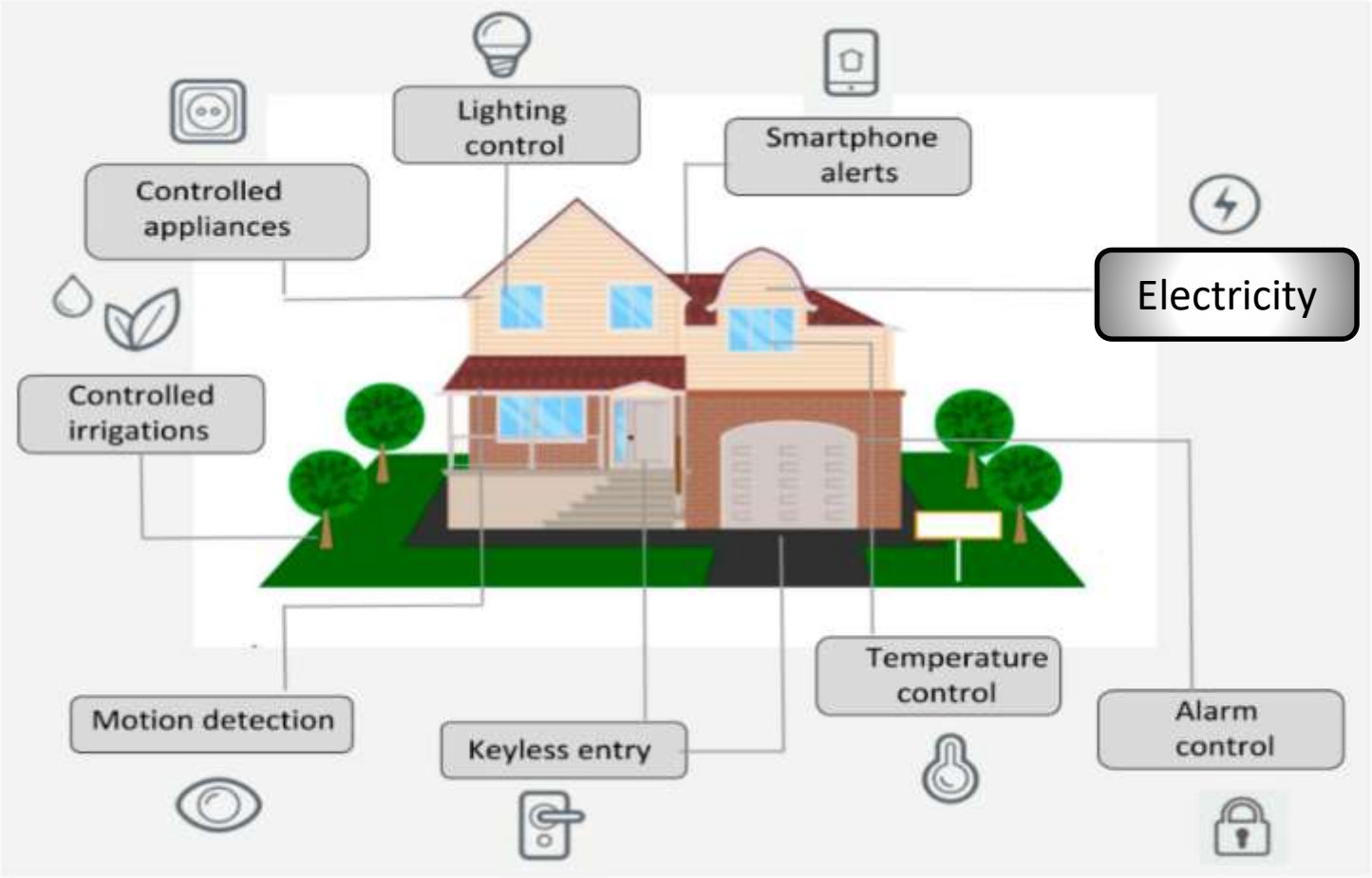


Legacy and impact

- Demonstrated the advanced engineering capabilities of ancient Greece.
- Influenced the development of later repeating weapons.
- Remains a symbol of engineering ingenuity in military technology.
- Challenges: Expensive and complex to produce, limiting widespread use

- Thank you

SMART POWER HOUSE



Empathize:

Sensor-based products are transforming our everyday lives, making our environments smarter and more efficient.

Energy Efficiency:

Sensor-based products have revolutionized the way we manage electricity, offering a smart and efficient approach to energy consumption. These devices come equipped with sensors that detect and respond to changes in the environment, ensuring that elect ricity is used only when needed.

- *Healthcare*: Wearable health monitors track vital signs and fitness levels, providing real-time health data.

- *Health Monitoring*: Air quality sensors and smart kitchen appliances ensure a healthier living environment.

- *Industrial*: Sensors in manufacturing monitor equipment performance, predicting maintenance needs and reducing downtime.

Sensor-based products make life easier, safer, and more efficient. They transform how we interact with our homes and workplaces, blending efficiency, convenience, and security. As technology advances, these smart systems will become more common, making our environments more intuitive and responsive to our needs.

Air Quality Sensor

Thermostat

- By empathizing with users, we can identify the most meaningful ways sensor-based technology can seamlessly fit into and enhance everyday lives. This user-centric approach allows us to focus on developing solutions that genuinely improve quality of life, rather than simply adding technology for its own sake.

Define:

Smart Home Revolution!

In a fast-paced world, people seek ways to simplify routines, enhance safety, and use resources efficiently. Many daily tasks, like adjusting home settings, monitoring health, or managing energy, still require manual effort, which is time-consuming and prone to error. Users need solutions that adapt automatically to their environment, offer valuable insights, and reduce the mental load of everyday responsibilities.

Creating an app would make life easier and smarter. Users would save on energy bills by managing their appliances more efficiently. Remote control of home devices adds convenience, while real-time security alerts enhance safety.

Ideate:

Smart Home Environment

Idea: A fully automated system that adjusts lighting, temperature, and appliance settings based on time of day, weather, and user preferences.

Features:

- Motion sensors to detect occupancy and adjust lighting or temperature accordingly.
- Integration with weather data to optimize heating/cooling based on external conditions.
- Voice-activated and app-based control for easy manual adjustments.

Benefit: Reduces energy consumption and provides personalized comfort without user intervention.

Switching to sensor based appliances isn't just techy for the sake of it; it's about making your home smarter, more efficient, and more user friendly. Sound like a future-proof plan?

Sticking to old-school appliances might seem fine, but it does come with its downsides:

Higher Energy Bills: Without sensors to turn off appliances automatically, you'll likely use more electricity, leading to higher bills.

Inconvenience: You'll manually turn everything on and off, which can be tedious, especially if you forget.

Reduced Security: No automatic lighting means darker areas, potentially making your home less secure.

Missed Automation: You won't benefit from automatic adjustments, like lights dimming or fans adjusting to room temperature.

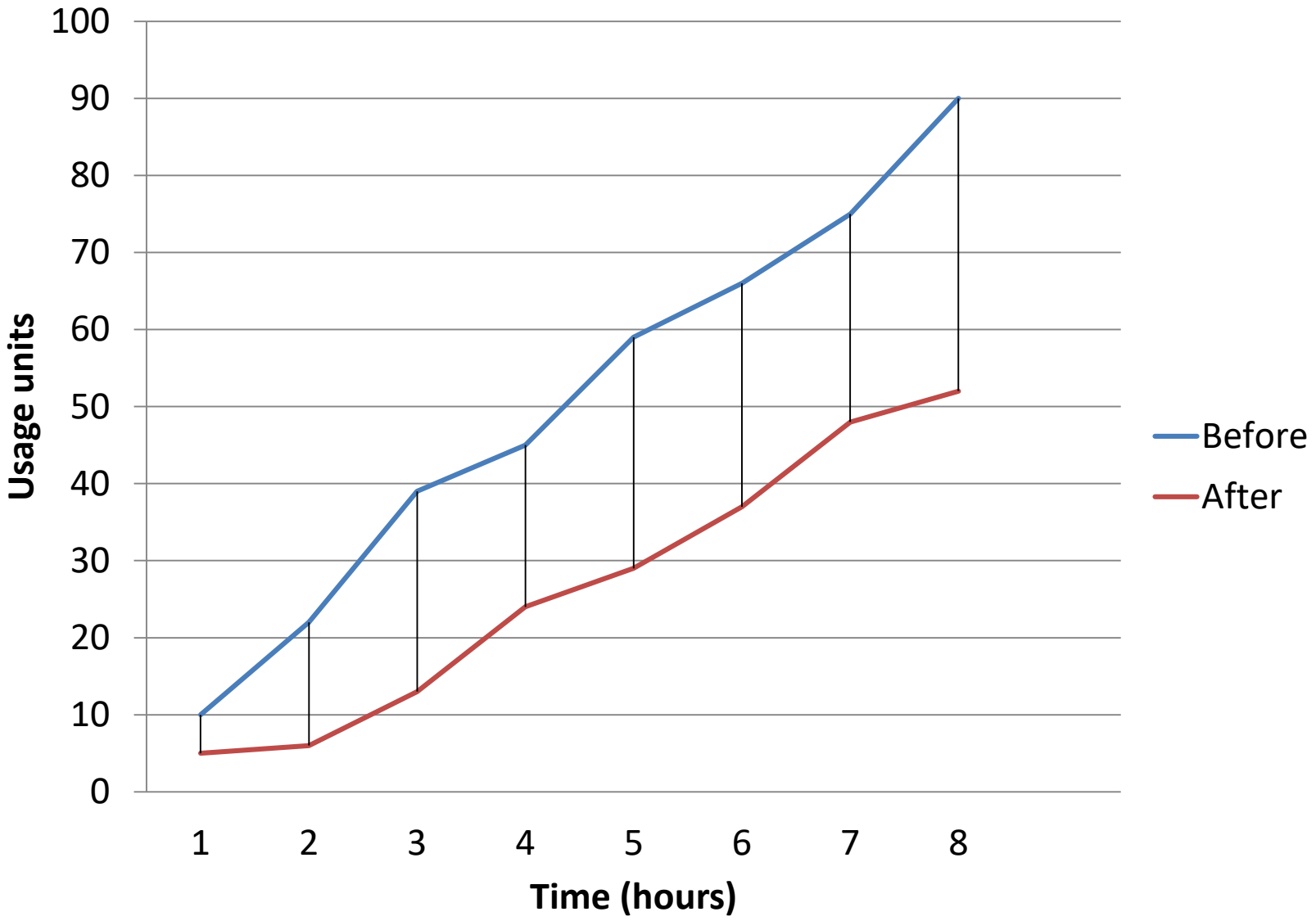
Sticking to old school appliances might seem fine, but it does come with its downsides:

Higher Energy Bills: Without sensors to turn off appliances automatically, you'll likely use more electricity, leading to higher bills.

Inconvenience: You'll manually turn everything on and off, which can be tedious, especially if you forget.

Environmental Impact: More energy consumption means a bigger carbon footprint.

In short, sticking with old appliances can be less convenient, more costly, and not so eco-friendly. Sound convincing enough to go high-tech?


100
90
80
70
60
50
40
30
20
10
0
Usage units
1
2
3
4
5
6
7
8
Time (hours)
Before
After

Prototype:

What could the features added to the App?

Imagine creating an app that tracks and manages energy consumption through sensor-based appliances. Here's a rough blueprint:

1. Home Dashboard:
Display current energy usage in real-time.
Show historical data and trends.
Provide alerts for unusual energy consumption.

2. Smart Controls:
Control lights, fans, and other appliances directly from the app.
Schedule appliances to turn on/off at specific times.
Adjust settings based on user preferences or detected activity.

3. Efficiency Tips:
Offer personalized tips to save energy.
Provide recommendations for more efficient appliances or usage patterns.

4. Bill Estimation:
Estimate the monthly electricity bill based on current usage.
Show potential savings from optimized usage.

5. Maintenance Alerts:
Notify users when an appliance might need maintenance or is running inefficiently.

6. Integration with Smart Home Systems:
Compatible with popular smart home ecosystems for seamless integration.

7. User Profiles:
Multiple profiles for different family members to customize settings.

The application allows sensor-based appliances to be operated both automatically and manually, ensuring users can control them even if technical issues arise.

Testing:

Home Automation Prototype

Test Setup: Simulate a home environment with rooms equipped with the smart home kit (motion, temperature, and light sensors).

Testing Aspects:

- **Responsiveness**: Measure the time it takes for lights or HVAC (**Heating, Ventilation, and Air Conditioning**—a technology used for managing indoor environments to provide comfort, air quality, and energy efficiency.) to respond to user presence.
- **Energy Efficiency**: Monitor energy usage with and without automation to evaluate energy savings.
- **User Experience**: Gather feedback on the app or control panel usability, setup ease, and system's ability to adapt to routines.

Metrics: Response time (seconds), energy saved (kWh), user satisfaction (feedback ratings).

Common Testing Stages Across Prototypes

- **Alpha Testing**: Test each prototype in a controlled environment for initial functionality and troubleshoot any hardware or software issues.
- **Beta Testing**: Use the prototypes in real-life settings or with select users to gather authentic feedback and identify usability issues.

Key Considerations for Sensor-Based Design:

- **User Experience and Accessibility**: Ensure applications are easy to understand and accessible for a wide audience.
- **Data Privacy and Security**: Since sensors gather data, address privacy and security concerns, making users feel safe and in control.
- **Scalability**: Consider how the sensor application might scale and adapt to different environments or more complex needs over time.

Customer Journey Mapping

Customer journey mapping is a tool that visualizes the steps a customer goes through when interacting with a company, from the initial contact to the final purchase and beyond. This process helps businesses understand their customers' experiences and identify areas for improvement.

Steps in Customer Journey Mapping:

Define Customer Personas: Identify and describe the target customers.
Map Customer Stages: Outline the stages of the customer journey (e.g., awareness, consideration, purchase, post-purchase).
Identify Touchpoints: List all the interactions customers have with the company.
Analyze Customer Actions and Emotions: Describe what the customer does and feels at each stage.
Spot Pain Points and Opportunities: Find areas where customers face difficulties and opportunities for improvement.
Visualize the Journey: Create a visual map of the journey, using diagrams or flowcharts.

Empathy Mapping

Empathy mapping is a tool used to understand the emotions, thoughts, and behaviors of users, providing deeper insights into their experiences. It focuses on understanding the user's perspective to design better products or services.

Components of an Empathy Map:

Says: What the user verbally expresses.
Thinks: What the user is thinking.
Does: The actions the user takes.
Feels: The user's emotional state.

Steps in Empathy Mapping:

Identify the User: Define the user persona.
Gather Data: Conduct research through interviews, observations, or surveys.
Populate the Map: Fill in the four quadrants (Says, Thinks, Does, Feels) with insights from the research.
Analyze and Synthesize: Look for patterns and key insights.
Use Insights for Design: Apply the findings to improve user experience.

Applying Design Thinking to sensor-based applications ensures they’re not only functional but also genuinely valuable and intuitive in enhancing daily life.

Upgrading to sensor-based appliances significantly reduces energy usage, leading to lower electricity bills and a smaller carbon footprint, supporting sustainable living. These appliances also enhance convenience by automating daily tasks and improve home security with real-time monitoring and alerts.

THANK YOU!

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Building a Robotic Dog with cardboard

DT Assignment

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Introduction

BRIEF OVERVIEW OF THE PROJECT :

The project involves creating a robot dog using cardboard, blending creativity and engineering principles. The goal is to design and construct a functional and aesthetically pleasing model that can showcase moment and interactivity.

DESIGN THINKING AS A PROCESS :

Design thinking is a problem-solving approach that emphasizes empathy, ideation, and prototyping to create innovative solutions. Here's how we use design thinking to develop a robot dog model:

EMPATHIZE

- **Goal:** Understand the needs, desires, and pain points of the target users (e.g., pet owners, elderly people, children, or those with disabilities**).**
- **Methods:**

- **User Research:** Conduct surveys or interviews to understand the expectations people have from a robot dog.
- **Observation:** Study how people interact with their pets, focusing on behaviors, emotional connections, and problems faced with real dogs (e.g., allergies, time constraints, or physical limitations).
- **Insights:** Users might want a robot dog that offers companionship, ease of care, and specific functionalities like mobility assistance or home security.

DEFINE

- **Goal:** Synthesize the findings from the empathy phase to define the core problem the robot dog should address.
- **Problem Statement:** "How might we design a robot dog that provides emotional support, assists with physical tasks, and is easy to maintain?"
- **User Needs:**
  I Emotional companionship.
  II Simple interaction (voice control, petting sensors).
  III Mobility and assistance features (e.g., for elderly users).
  IV Low maintenance (e.g., easy charging, no need for food or walking).

IDEATE

- **Goal:** Generate a wide range of ideas for the robot dog, considering its design, features, and functionalities.
- **Brainstorming**
  - ➔ Design Features: A cute, dog-like appearance with realistic movement, responsive sensors, and artificial intelligence (AI) that mimics pet behavior.
  - ➔ Interaction Methods: Voice commands, touch sensors for petting, and a mobile app for controlling or customizing behaviors.
  - ➔ Special Functions: The dog can assist with tasks like fetching items, alerting to potential intruders (security), or providing emotional comfort to people with disabilities.
  - ➔ Prototyping: Choose a few ideas that seem most promising. For example, the robot dog could have a wagging tail, a bark sound, and mobility like a real dog.

PROTOTYPE

- **Goal:** Build a tangible model of the robot dog to test and refine ideas.
- **Rapid Prototyping:** Create a basic model of the robot dog using materials like plastic, 3D printing, and basic electronic components (motors, sensors, AI integration).

- **Components:**
- Body: Soft, flexible exterior with fur-like texture for a comforting feel.

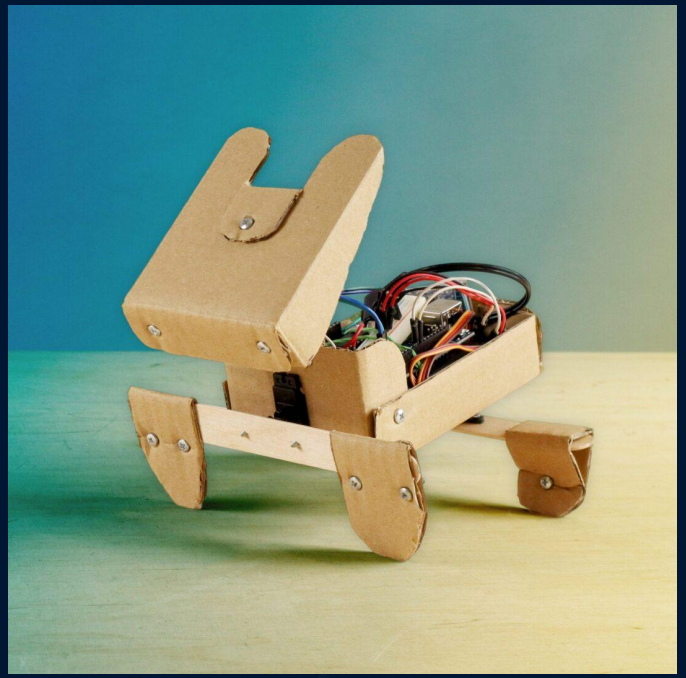
- Mobility: Simple motors for walking, sitting, or standing up.

- Interactivity: To move within the radius as controlled via bluetooth by the users.

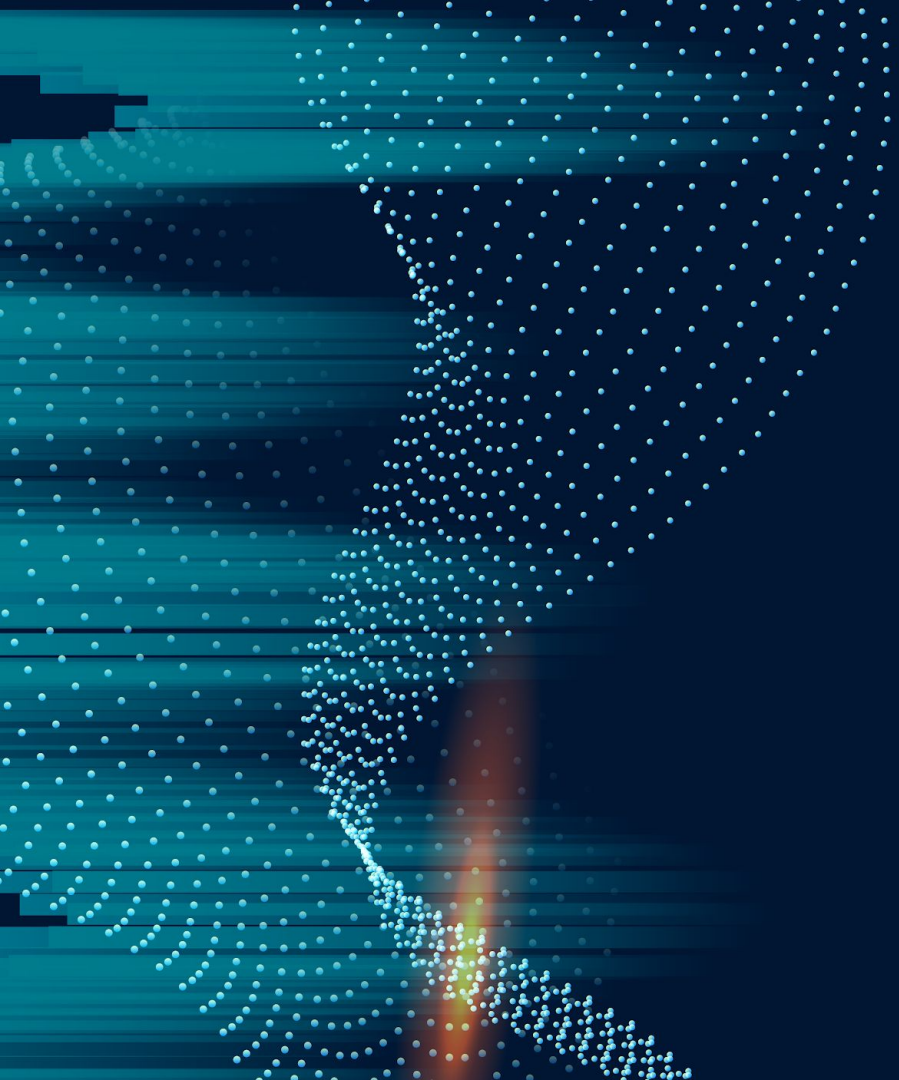
- User Feedback: Show prototypes to potential users and gather feedback on the design and features. Test if users enjoy the experience of interacting with the robot dog.

TEST

- **Goal:** Test the robot dog in real-world scenarios to evaluate its performance and refine the design.
- **User Testing:** Observe users interacting with the robot dog in various environments (e.g., at home, in a park, or for elderly care). Measure how effectively it fulfills emotional, physical, and entertainment needs.
- **Iterate:** Based on feedback, make improvements such as enhancing AI interactions, improving mobility, or making the design more user-friendly.
- **Testing Scenarios:** Test the robot dog's response to commands, its mobility in various environments, and its emotional impact on users.



A small sneek peak



Thank you

PUBLIC TRANSPORT AND PARKING

PROBLEM STATMENT

- "How might we design a seamless transportation and parking experience, reducing congestion, stress, and environmental impact, while promoting efficient use of urban infrastructure?"

KEY CHALLENGES

- Difficulty finding parking spots
- Congested roads and traffic jams
- Limited public transportation options
- Inefficient route planning
- Insufficient real-time information
- Inaccessible or expensive parking
- Environmental concerns (emissions, air pollution)

EMPATHIZE : UNDERSTANDING USER NEEDS

User Research:

- Surveys (online, in-person)
- Interviews
- Observational studies (parking behaviour, traffic patterns)
- Focus groups
- Social media listening

DEFINE : IDENTIFYING THE PROBLEM

User Personas:

1. Daily Commuter (working professional)
2. Occasional Driver (visitor, tourist)
3. Disabled User (wheelchair user)
4. Low-Income User (limited transportation options)
5. Environmental Advocate (prioritizes sustainable transportation)

Empathy Mapping

1. Think & Feel:-

- - Safety concerns, frustration with delays, desire for convenience.

2. Hear:-

- - Peer feedback, service announcements, news updates.

3. See:-

- - Schedules, crowded stations, parking signs.

4. Say & Do:-

- - Share experiences, use planning apps, evaluate transport choices.

5. Pain Points:-

- - Long wait times, parking difficulties, high costs.

6. Gains:-

- - Reliable service, real-time updates, incentives for use.

Customer Journey Mapping

1. Awareness:-

•Discovering options through searches and recommendations.

2. Consideration:-

•Comparing routes, costs, and parking locations.

3. Booking/Planning:-

•Using apps for planning routes and purchasing tickets.

4. Journey/Experience:-

•Engaging with transport (waiting, traveling) and locating parking.

5. Post-Experience:-

•Evaluating satisfaction and providing feedback.

6. Loyalty/Advocacy:-

•Deciding on future use and recommending services.

PAIN POINTS

1. Difficulty finding parking
2. Traffic congestion
3. Uncertainty about transportation options
4. Inaccessibility
5. High parking costs
6. Limited real-time information
7. Safety concerns

PROTOTYPE

Low-Fidelity Prototypes:

1. Paper sketches
2. Digital wireframes
3. Interactive prototypes (InVision, Figma)

High-Fidelity Prototypes:

1. Functional apps and websites
2. Physical models of parking infrastructure
3. Simulated transportation environments

SOLUTIONS

Brainstorming Solutions

1. Smart parking systems
2. Integrated transportation apps
3. Real-time traffic updates
4. Accessible parking infrastructure
5. Dynamic pricing and incentives
6. Shared mobility services
7. Green transportation options

Example Solutions

1. **Smart Parking App:**

- Real-time parking availability
- Reservations and payments
- Guidance to parking spots

2. **Integrated Transportation Platform:**

- Real-time schedules and routes
- Trip planning and optimization
- Multimodal transportation options

3. **Accessible Parking Infrastructure:**

- Wheelchair-accessible parking spots
- - Audio and visual guidance
- - Priority parking for disabled users

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ONLINE GROCERY SHOPPING

Title: "Improving the Experience of Online Grocery Shopping"
Subtitle: A Design Thinking Approach
By:Chaithanya,karthik,Tagore,Dhanesh.
19/10/2024 and CSE-I

IMPORTANCE OF ONLINE GROCERY SHOPPING ??

1. Convenience & Time-Saving

- Shopping online allows users to buy groceries from the comfort of their home, reducing the need for physical store visits.
- Users can save time by avoiding long queues and commute times, especially during busy schedules.

2. Increased Demand Post-Pandemic

- The COVID-19 pandemic accelerated the adoption of online grocery shopping as a safer alternative to in-store shopping.
- As a result, many users have integrated online shopping into their routines even after lockdowns.

4. Personalized Shopping Experience

- With features like customized recommendations, shopping lists, and scheduled deliveries, online grocery shopping can cater to individual user preferences and needs.

5. Growth of E-Grocery Market

- The global e-grocery market has seen exponential growth, with more platforms investing in improving customer experience, offering promotions, and adopting innovative technologies like AI and machine learning for better service.

PROBLEMS OF "ONLINE GROCERY SHOPPING".

Problem Statement

- **Problem:** Users face challenges such as:
  - Poor product recommendations
  - Difficult navigation
  - Issues with delivery
- **Key Question:** How might we improve the online grocery shopping experience to make it more seamless and user-friendly?

User Challenges

- **1. Poor Product Recommendations**
  - Algorithms may fail to suggest relevant products, leading to user frustration.
- **2. Difficult Navigation**
  - Cluttered interfaces can make it hard for users to find desired items.
- **3. Delivery Issues**
  - Delays, inaccurate tracking, and unavailability of delivery slots affect satisfaction.

User Challenges

- **1. Poor Product Recommendations**
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- **2. Difficult Navigation**
  - **Cluttered interfaces can make it hard for users to find desired items.**
- **3. Delivery Issues**
  - **Delays, inaccurate tracking, and unavailability of delivery slots affect satisfaction.**

Empathize: Understanding User Needs

- **User Research:**
  - Conduct surveys and interviews to gather insights on user experiences.
- **Key Findings:**
  - Users want reliable recommendations and a straightforward shopping proces
  - Many experience frustration with delivery and product quality.

Define: Identifying the Problem

- **Problem Statements:**
  - "Users struggle with navigating complex online grocery interfaces."
  - "Users are often dissatisfied with the quality of recommended products."
- **Focus on Pain Points:** Ensure that solutions target these specific challenges.

Ideate: Generating Ideas

- **Brainstorm Solutions:**
  - AI-driven personalized product recommendations based on purchase history
  - Streamlined navigation with filters and intuitive categorization.
  - Enhanced delivery tracking with real-time updates and notifications.
- **Example Solutions:**
  - Interactive tutorials for first-time users.
  - Virtual shopping assistants for guidance.

Prototype: Building Solutions

- **Creating Prototypes:**
  - Develop wireframes for an improved user interface.
  - Create mockups for the product recommendation system.
- **Tools for Prototyping:** Figma, Adobe XD, or paper sketches.

Test: Getting Feedback

- **User Testing:**
  - Conduct usability testing sessions with real users.
  - Gather feedback on the prototype and iterate based on user insights.
- **Key Questions:**
  - Is the navigation intuitive?
  - Do the recommendations align with user preferences?

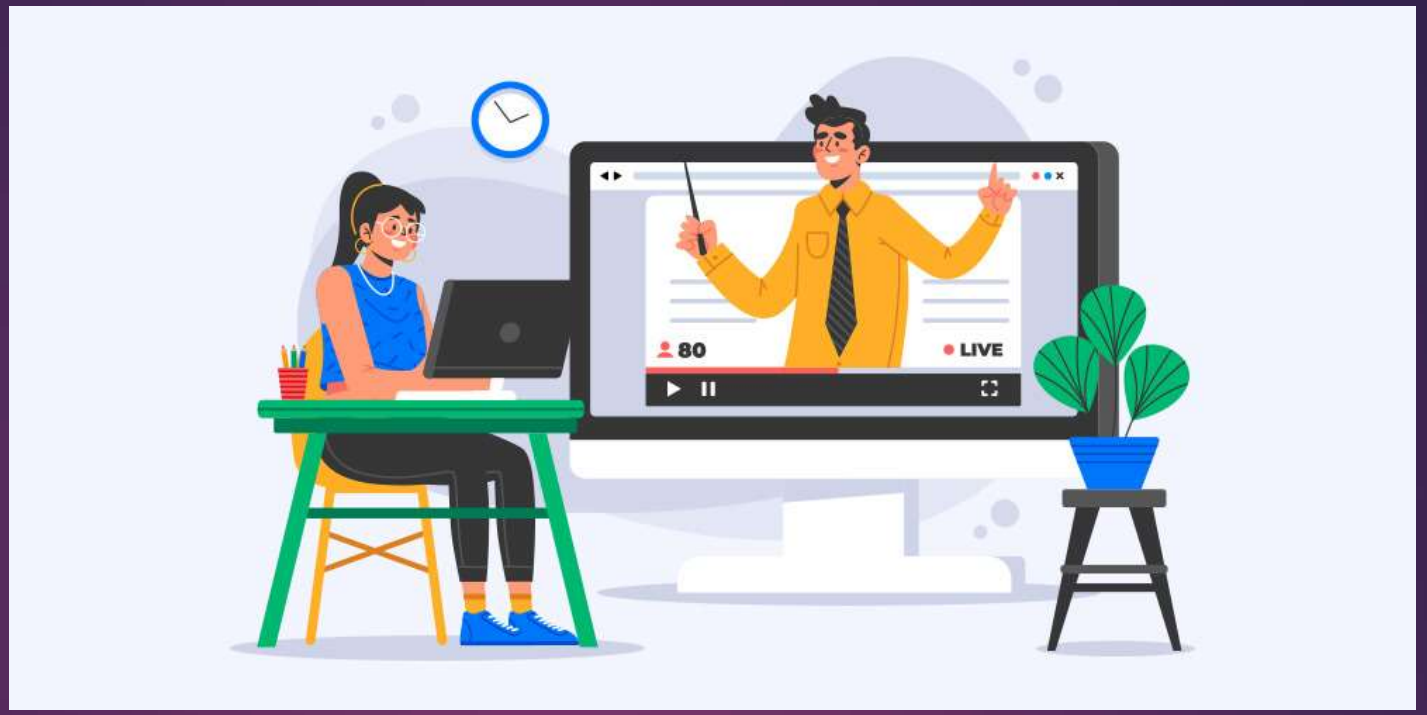
Innovative Features for Improvement

- **Potential Features:**
  - AI-powered chatbots for instant customer support.
  - Enhanced filtering options for dietary preferences (e.g., vegan, gluten-free).
  - Virtual reality (VR) options to simulate the in-store experience.

Conclusion

- **Summary:** Design thinking provides a structured approach to improving online grocery shopping experiences.
- **Next Steps:** Emphasize the importance of continuous feedback and iteration in creating user-friendly solutions


ONLINE
EDUCATION



ONLINE EDUCATION.

APPLICATION TO ENCOURAGE UNIVERSITIES, COLLEGES AND SCHOOLS TO USE ONLINE MODEM FOR EDUCATION.

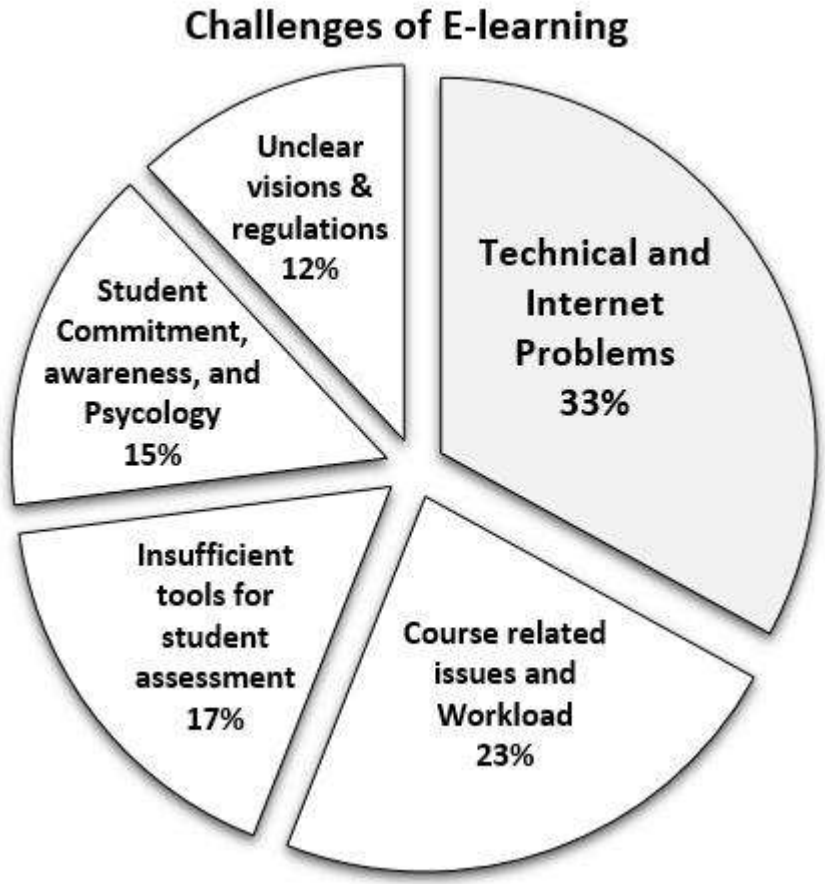
Our Online and Classroom Communicative

Why is online education not prefered?

There are few major points that make online education less viable than physical education:-

- Teacher -Student interactions.
- Student-Student interactions.
- High self discipline requirements.
- Technical issues like internet or suitable devices.
- Social isolation.
- Lack of quality.

These are only few of the problems that makes online education less preferable. So, the new application needs to overcome these problems in one way or the other.



Why should we use online education?

- The reason for developing this app is not to use online education over physical education but to encourage educational institutions to use online modem in times of crisis(like covid-19 or rains) enhancing experience for both teachers and students alike.
- Making the classes more immersive and clear.
- Providing experience of physical education online.

Classes more interactive and problem free

- After joining the class everyone will be added into a group chat in which only people with admin's permission can message.
- Everyone in the class has different tags. Each tag giving them access to features that help fulfil their role.
- Uses AI name recognition to enforce a name format. So, unknown person can't enter. This also removes possibility of unwanted mess in group chat with proxy names.

Chat – Categorisation.

- The messages sent in chat can also marked with tags such as Doubt, Assignment etc..,
- Chats tagged with assignment will be classified separately with submitter's Name.
- A pre assigned list of candidates in the class can be given, to mark students who submitted the assignments.

The Lecturer/Teacher Tag.

- When using the teacher tag the person can connect to a board that sync to cloud to project data from the board directly onto the screen.(Similar to Lenovo smart paper.)
- This method can be used not to compromise the video quality.
- While using this feature the person can use to video windows one for board projection and another for him for interactive lecturing.
- The lecturer can view doubts asked by students and clarify them.
- When a students asks a doubt using the Doubt tag the teacher will hear the doubt through AI'S voice.
- To stop too many doubts from disturbing the class the AI will only read out one doubt per 5 minutes.
- Teacher can answer other questions after the end of the session.

AI Attendance Marking.

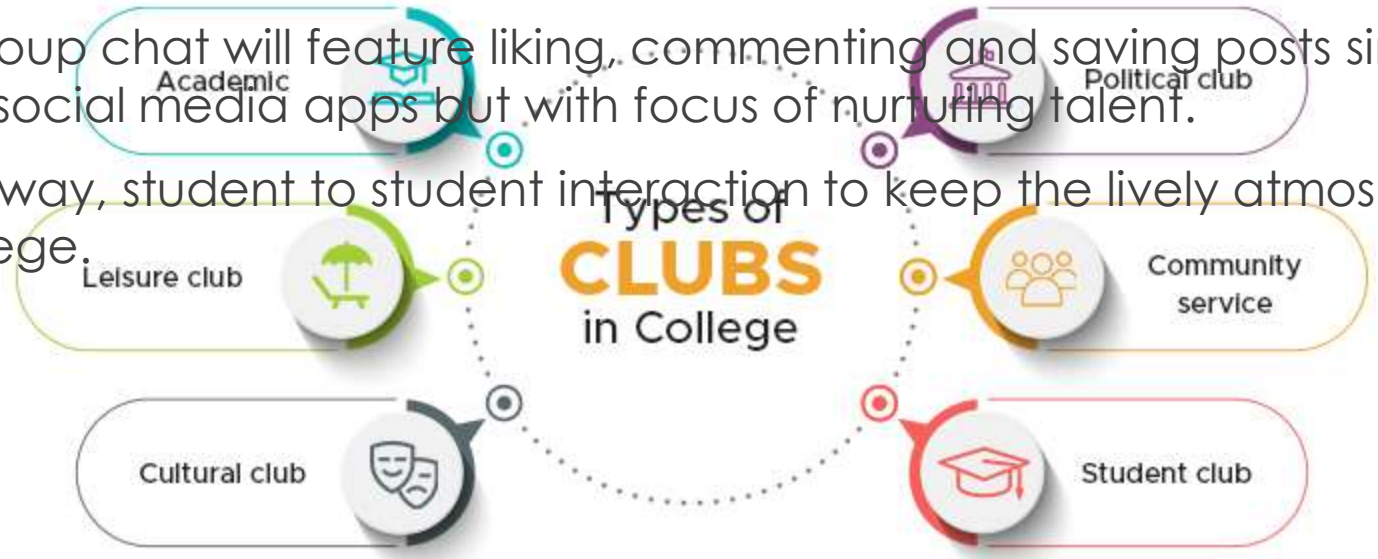
- One main reason for unpopularity of online classes is students not attending properly or having their videos turned off.
- To solve this AI will mark attendance of a student by matching their name and the name in the attendance sheet based on how long the camera was turned on and also uses motion sensor technology to detect movement to assess the person listening to the class.
- Before the class starts admin can set the time and also mandate time.
- For example if the class is a 4 hour lecture and 3 hours 15 minutes is mandate time then the students must have their cameras turned on for 3 hours 15 min in total to get full attendance and they can utilise other time for lunch or breaks.

Cloud storage.

- The app will feature a huge cloud library to provide students access with all kinds of books and materials and also can be used to save submitted assignments or tasks.
- Through this cloud storage video lectures can also be shared.

Student – Student interaction.

- Students can also form groups/clubs to interact with each other sharing their talents, art, creativity.
- Students can also link their account to their personal social media accounts to sync data and share their talent to their respective clubs and social media alike.
- This group chat will feature liking, commenting and saving posts similar to other social media apps but with focus of nurturing talent.
- In this way, student to student interaction to keep the lively atmosphere of a college.

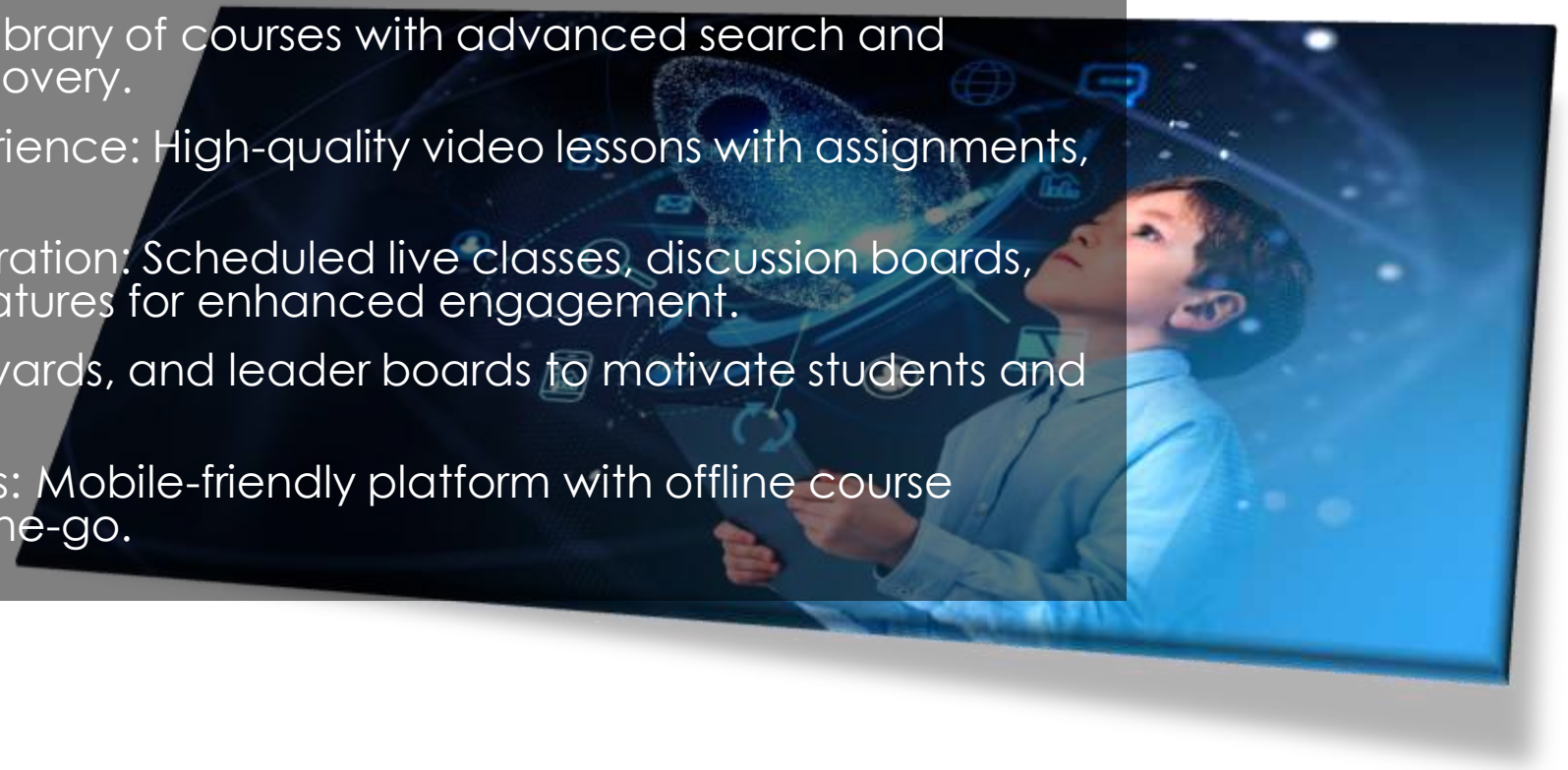


Student Presentations.

- Students can also present their work in their classes using built in softwares to make PPT'S, Assignments on their mobile.
- To overcome internet issues making Assignment, PPT'S can still be done offline but uploading them would still require internet.

PROTOTYPE – Features.

- 1. User Profiles and Personalization: Customizable student dashboards and detailed educator profiles for personalized learning experiences.
- 2. Course Library: Extensive library of courses with advanced search and filtering options for easy discovery.
- 3. Interactive Learning Experience: High-quality video lessons with assignments, and interactive sessions
- 4. Live Sessions and Collaboration: Scheduled live classes, discussion boards, and group collaboration features for enhanced engagement.
- 5. Fun Learning: Badges, rewards, and leader boards to motivate students and make learning fun.
- 6. Mobile and Offline Access: Mobile-friendly platform with offline course downloads for learning on-the-go.



Implementation.

- Backend Database: Implement user authentication (e.g., via email or social login) and store user data in a database.
- Video Hosting and Streaming: Use a reliable video streaming service (like AWS or Vimeo) for hosting videos with interactive elements, such as
- Search Algorithm: Build a robust search function that allows users to search by keywords and apply filters such as difficulty, rating, and topic.
- Interactive Elements: Use libraries or frameworks like HTML5 or JavaScript for embedding quizzes and clickable diagrams directly within video content.
- Management System (CMS): Develop a system where educators can easily upload video lessons, quizzes, and assignments.
- Database Structuring: Organize courses into categories and tags for easy indexing.
- Ux/UI Design: Create intuitive, customizable dashboards for both students and educators to easily manage profiles and track learning progress.

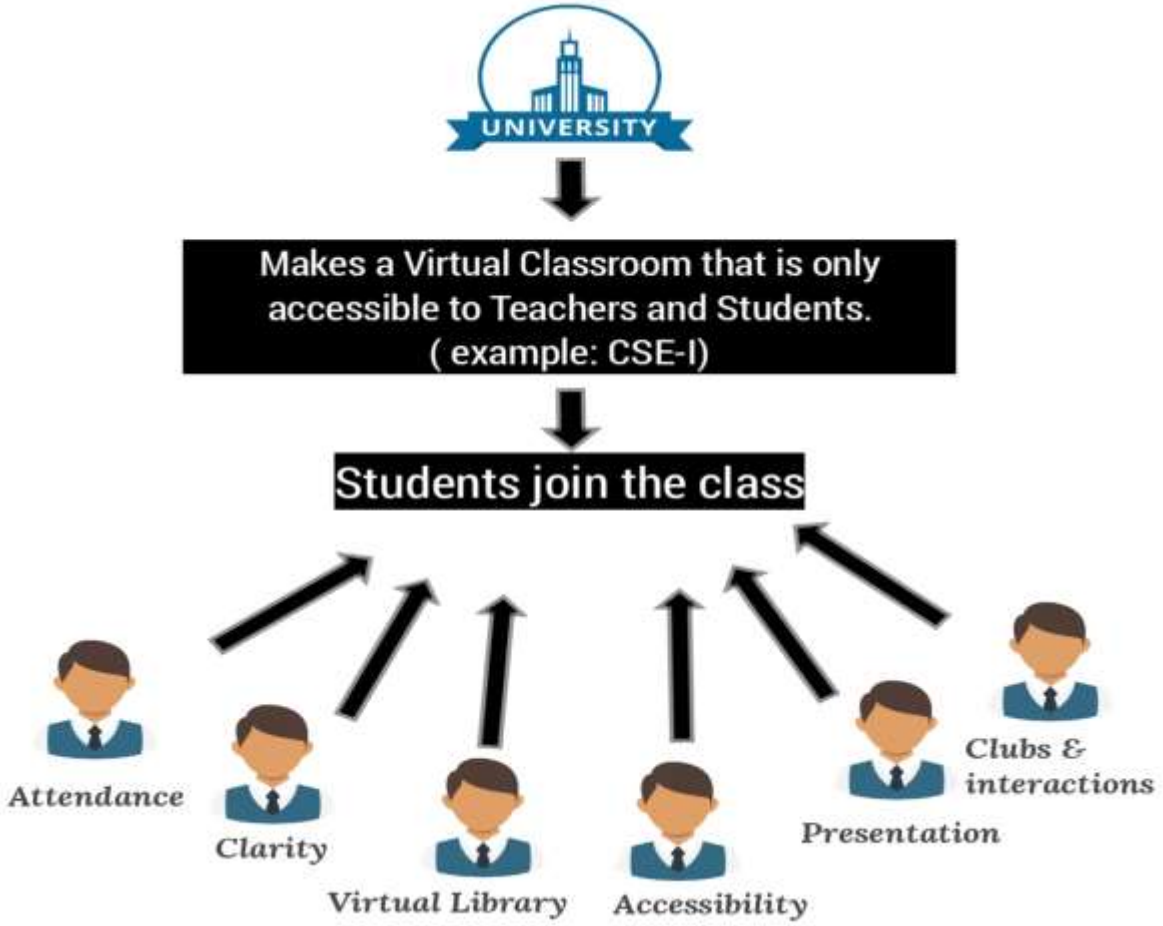
Empathy Mapping – Teacher point of view

- Clarity online classes.
- Ai based attendance.
- Increase students focus in class due to Ai monitoring.
- Sharing slides, PPTs and assignments becomes easier.
- No need to attend physical, reduces travelling costs.
- Doubt Clearing becomes easier and ore interactive.

Empathy Mapping – Student point of view

- Less stressful schedules.
- Adequate breaks.
- Making and submitting assignment becomes easier because of virtual Library
- In built Assignment/Ppt maker and Ai chat.
- No need to attend physically, reduces travelling costs.
- Clubs and interactions.

Customer Journey Mapping.



Suggestions that can be followed while using the online modem.

- While employing online classes, the class hours should be reduced to avoid excess screen time.
- Adequate breaks should be provided.
- Must have proper internet connection for immersivity.
- Students should maintain their own rules to make the classes peaceful.
- Use all the features to fullest to maximize interactions.

The End.

Happy Online Education.

BY :- CSE - I

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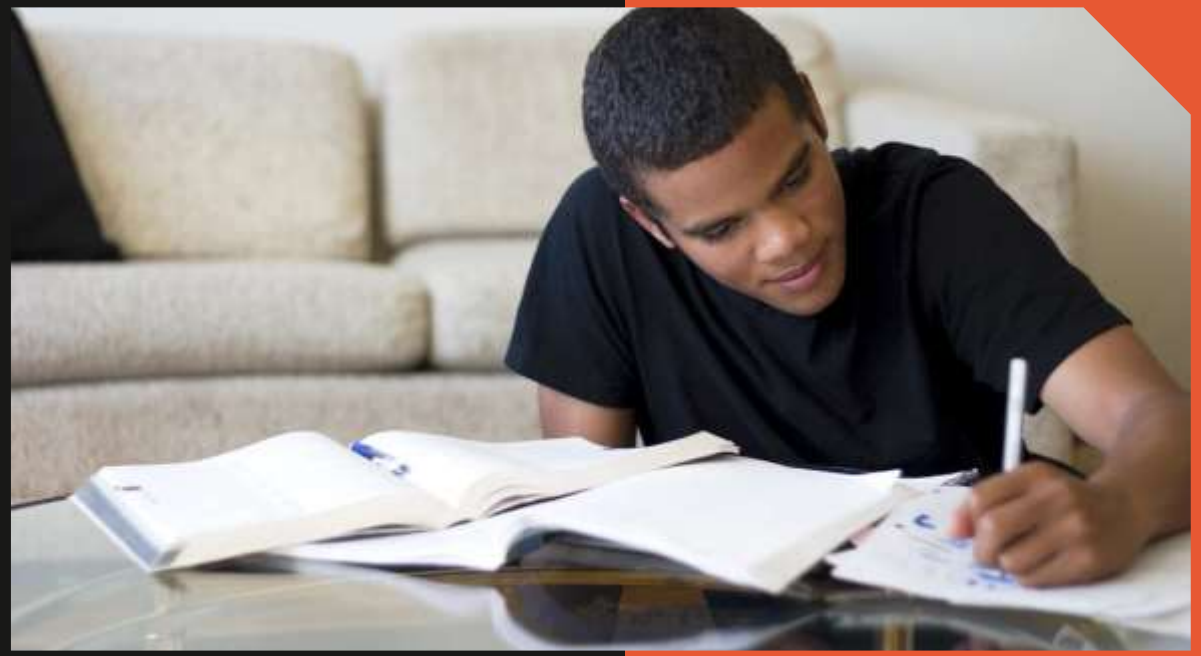
G. Premsen – 24241A05NZ.

D. Venkat pavan – 24241A05NV.

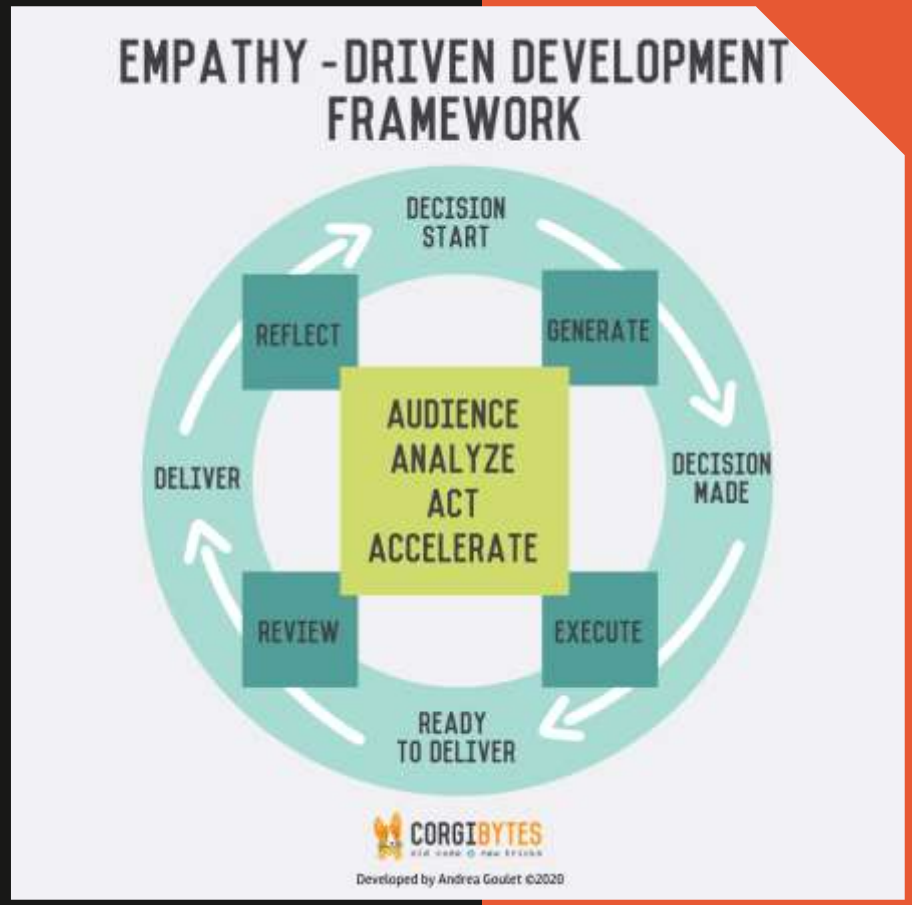
Introduction to SnapNLearn

SnapNLearn is a website designed to revolutionize the studying experience by making it easier and more efficient. With its innovative features, SnapNLearn aims to simplify the process of creating and reviewing flashcards, ultimately helping users maximize their learning potential.



Empathy-driven Design Focus

At SnapNLearn, we understand the challenges of studying and the importance of effective learning. That's why our app is built with an empathy-driven design focus. We put ourselves in the shoes of our users to create a platform that truly meets their needs and enhances their studying experience.



Define: SnapNLearn's Purpose and Functionality

SnapNLearn is a website that allows users to quickly create digital flashcards by taking pictures of their study materials. The app then utilizes its built-in AI to extract the key points from these photos and automatically generate flashcards. This purposeful design enables users to streamline their study process and focus on the most important information.

Prototype: How SnapNLearn Works

AI Summarizes: Automatic creation of flashcards with key points

SnapNLearn's powerful AI technology analyzes the scanned text to identify the essential points. It then automatically generates flashcards, including definitions, key concepts, or concise summaries. This feature ensures that users have comprehensive and well-structured flashcards for efficient learning.

Snap and Scan: Capture study material with a photo

Users can open the SnapNLearn website and easily capture a photo of their notes, textbooks, or any study material. This simple process eliminates the need for manual data entry and saves valuable time.

Study Anytime: Different study modes for effective learning

SnapNLearn offers various study modes to cater to different learning preferences. Users can review their flashcards anytime and anywhere, utilizing modes like quick review or spaced repetition. These options allow for personalized and effective learning experiences.

Save and Sync: Access flashcards across multiple devices: SnapNLearn securely saves users' flashcards to their accounts, enabling seamless access across multiple devices. Whether switching phones or needing to study on a different device, users can continue their learning journey without interruption.

Benefits of SnapNLearn

Accessibility: Use the app anytime, anywhere for quick revision

SnapNLearn's platform is accessible online, allowing users to study anytime and anywhere. Whether on a laptop, tablet, or smartphone, users have the flexibility to review their flashcards and engage in quick revision sessions whenever it suits them.

Efficient studying: Focus on key points and important information

With SnapNLearn, users can concentrate on the most crucial aspects of their study material. The AI-powered flashcards condense the content into concise and relevant points, ensuring that users focus on what truly matters.

Time-saving: Eliminating the need to manually create flashcards

SnapNLearn significantly reduces the time and effort required to create flashcards. By automating the process, users can focus their energy on studying and reviewing the material, saving valuable time.

Conclusion

SnapNLearn empowers users to study smarter, not harder. By leveraging innovative technology and an empathy-driven design focus, SnapNLearn simplifies the flashcard creation process and enhances the efficiency of studying. With its time-saving benefits, focus on key points, and accessibility, SnapNLearn is the ultimate tool for students, professionals, and anyone seeking effective and convenient learning experiences.

Done by Team Flash

Our Team :

1) Preetham Rao
2) Harshit Kalyan
3) Suraj G
4) Abhisaran
5) Vamshi Krishna
6) Hemanth M
7) Anirudh
8) Vaibhav Ch
9) Karthikeya
10) A.Amarnath
11) Vivek

Enhancing the Waiting Experience in Hospitals and Clinics

Patients often face long wait times in hospitals or clinics, leading to frustration and anxiety. It's crucial to design a more comfortable and less stressful waiting experience.

Presented By:

P. Veda Sree – 24241A05PS – 1st yr CSE - I
V. Vaishnavi – 24241A05Q8 – 1st yr CSE - I

The Challenge: Frustration and Anxiety from Long Wait Times

1 Unpredictable Delays

Uncertain wait times create a sense of uneasiness and make it difficult to plan.

2 Lack of Information

Patients are often left in the dark about the estimated wait time, further fueling anxiety.

3 Physical Discomfort

Uncomfortable seating, limited space, and poor lighting contribute to physical discomfort.

Understanding the Patient Perspective

Stress and Anxiety

Waiting can trigger feelings of worry, especially when it comes to health concerns.

Boredom and Frustration

Lack of engaging activities and a monotonous environment can make the wait feel longer.

Sense of Powerlessness

Feeling like they have no control over the situation can exacerbate stress and frustration.

Identifying Pain Points in the Waiting Process

1. **Arrival**

   The initial point of contact sets the tone for the entire experience.

2. **Waiting**

   This is where the most stress and frustration occur, needing careful design.

3. **Check-in**

   A smooth and efficient check-in process helps to reduce anxiety.

4. **Consultation**

   The consultation itself is the core of the visit, but waiting impacts the experience.

5. **Departure**

   The final impression is formed, leaving a lasting impact on the patient's perception.

Designing for Comfort and Stress Reduction

Comfortable Seating

Provide ergonomic chairs with ample space and adjustability to accommodate diverse needs.

Quiet Zones

Create designated areas for those who prefer a quieter environment, offering a sense of calm.

Natural Light

Maximize natural light exposure, improving mood and promoting a sense of well-being.

Aesthetics and Décor

Incorporate calming colors, artwork, and plants to create a more pleasant atmosphere.

Integrating Technology to Improve the Experience

1

Digital Check-in

Allow patients to check in remotely via a mobile app or kiosk, reducing wait times.

2

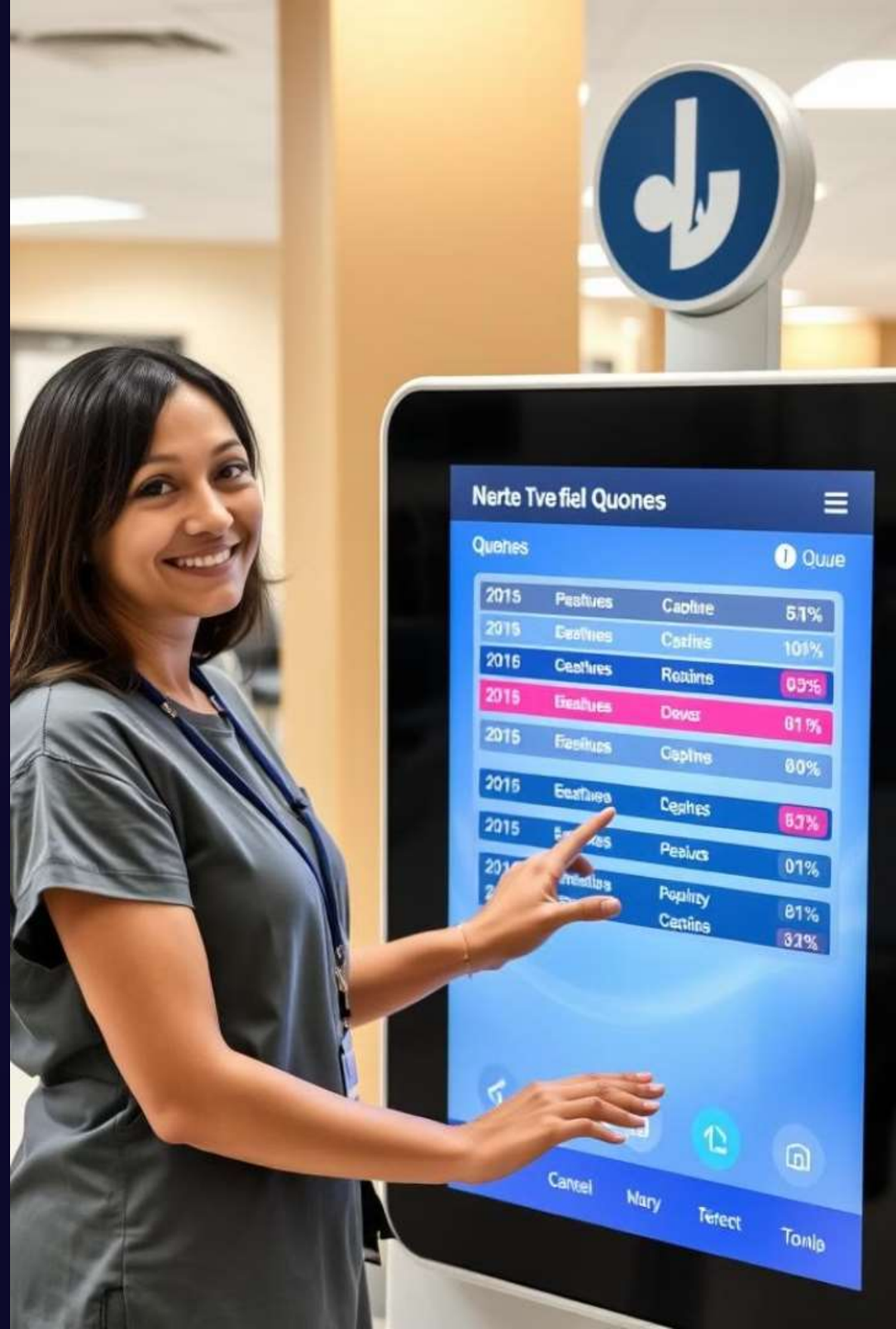
Real-time Wait Time Updates

Provide patients with accurate and up-to-date information on estimated wait times.

3

Interactive Entertainment

Offer digital entertainment options like games, music, or educational videos to keep patients engaged.



Fostering a Welcoming and Supportive Environment

Personalized Service

Train staff to provide friendly and empathetic service, ensuring a welcoming atmosphere.

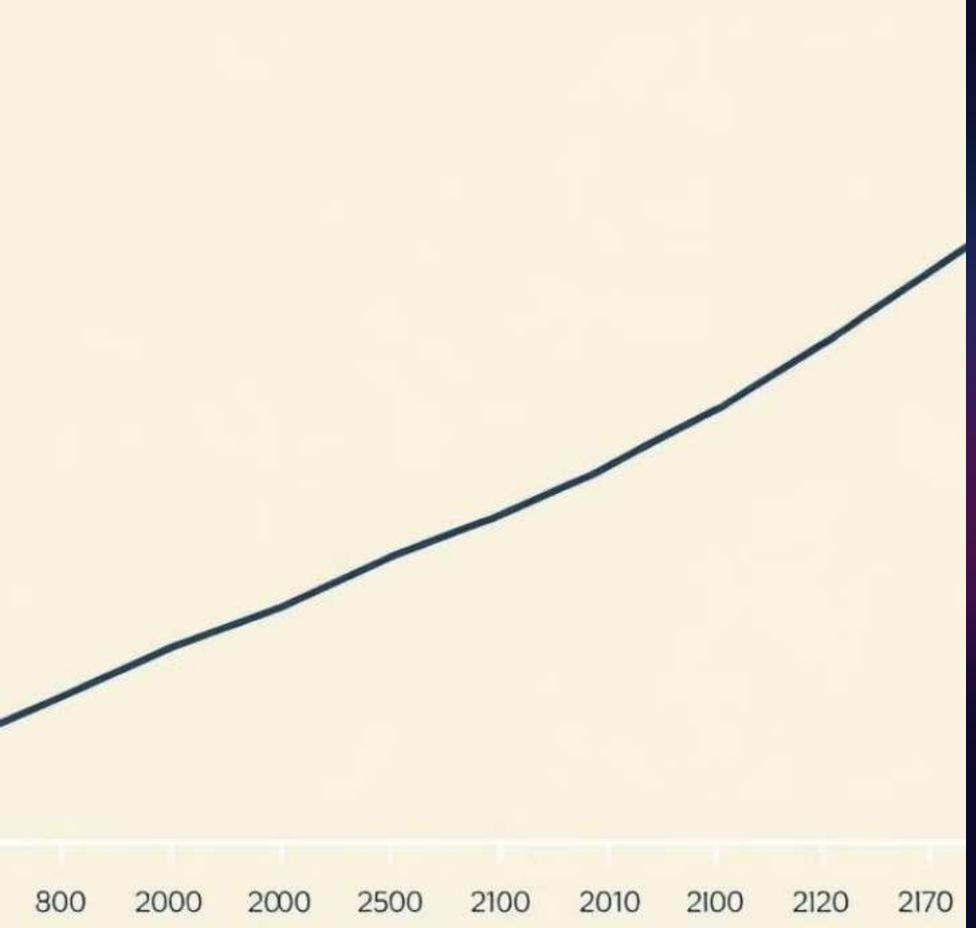
Clear Communication

Maintain transparency regarding wait times and procedures, addressing patient concerns.

Patient Comfort

Offer amenities like beverages, snacks, and reading materials to enhance patient comfort.

Patient Satisfaction Graph



Measuring Success and Continuous Improvement

Patient Satisfaction Surveys	Measure overall experience and identify areas for improvement.
Wait Time Data Analysis	Track wait times, identify bottlenecks, and optimize scheduling.
Feedback Collection	Gather patient feedback through comment cards or online surveys.

24241A05PS & 24241A05Q8

DESIGNING A WASTE MANAGEMENT SYSTEM FOR URBAN AREAS

PROBLEM DEFINITION

Urban areas face serious waste management challenges due to growing populations, leading to pollution, inefficient waste handling, and overfilled landfills. The improper management of waste leads to environmental harm, such as air and water pollution, and contributes to climate change due to methane emissions from organic waste in landfills.


KOMATSU
KOMATSU

EMPATHY

To design an effective waste management system, we must understand the challenges faced by both urban residents and waste management workers. Residents often struggle with inconvenient waste disposal points, lack of space for segregation, and inconsistent pickup times. Some aren't aware of the importance of recycling, leading to frustration when bins overflow or aren't properly managed.

On the other hand, waste management workers face occupational hazards, high workloads, and logistical issues like outdated equipment and unsafe working conditions. By conducting interviews, surveys, and observations, we can gather insights into their daily struggles.This empathy-driven approach helps us design a system that addresses their pain points, making it more efficient and user-friendly.

DEFINE

Analyze the data collected during the empathy phase to identify the core issues and needs of the users. "Urban residents need a more efficient and eco-friendly waste management system to reduce environmental harm and improve city cleanliness."

RECYCLING AND COMPOSTING SOLUTIONS

-Separation of Waste at the Source: Introduce color-coded bins for organic waste (green), recyclables (blue), and landfill waste (black), allowing easier sorting and processing.

-Composting: Create urban composting facilities or community composting hubs to turn organic waste into fertilizer, reducing landfill contributions and methane emissions.

-Incentivizing Recycling: Cities can create incentive programs (e.g., discounts on utilities) to reward residents for separating waste and recycling. Implement “pay-as-you-throw” policies where households are charged based on the amount of waste they generate.

IDEATE

Brainstorm a wide range of potential solutions to address the problem statement. Encourage creative thinking and explore various possibilities.
Solutions could include:

-Implementing the "3 Rs" (Reduce, Reuse, Recycle) in urban communities.

-Developing a circular economy model.

-Introducing color-coded bins for waste separation.

-Creating urban composting facilities.

-Incentivizing recycling through programs and policies.

-Using smart technology and urban planning for waste reduction.

CORE PRINCIPLES OF A SUSTAINABLE SYSTEM

Waste Reduction: The focus should be on reducing the amount of waste produced. Encourage urban communities to adopt the "3 Rs" – Reduce, Reuse, Recycle – by promoting eco-friendly behaviors like minimizing single-use plastics, composting organic waste, and purchasing sustainable products.

Circular Economy: This is a model where materials are reused, and waste is minimized. Encourage industries to design products that are easy to disassemble and recycle.


COMPOSTING
SOILED PAPER
PAPER DISHWARE
BONES
COMPOSTABLE DISHWARE AND SILVERWARE
TEA BAGS
FRUIT
VEGETABLES
NAPKINS
MEAT
COFFEE GRINDS
GLASS
PAPER
CANS
PLASTIC
RECYCLING


Waste Collection
Upcycling
Recycling Units
Collective Contribution to Circular Economy
Waste Water
Re-usable water
Nanoparticle-based remediation
Social Responsibility


PAPER
PLASTIC
GLASS
METAL

PROTOTYPE

Select the most promising ideas from the ideation phase and create low-fidelity prototypes. These could be pilot programs, mock-ups of smart bins, or small-scale community composting hubs. The goal is to test these solutions on a small scale to gather feedback and identify potential improvements.

URBAN PLANNING AND SMART TECHNOLOGY

Well-developed waste management systems, with regular garbage collection, efficient street cleaning, and recycling facilities in place. Advanced technologies like smart bins, pneumatic waste collection, and automated street sweepers help maintain cleanliness in urban areas.

Urban Design for Waste Reduction: Design cities with accessible recycling points and waste management facilities. Integrate waste management with public spaces like parks, markets, and transit hubs. Decentralized Waste Processing: Encourage small-scale recycling plants in urban neighborhoods to reduce transportation emissions and process waste locally.

Public Awareness and Civic Responsibility : In countries like Japan or Singapore, there is a strong sense of civic responsibility ingrained in the culture. People are taught from a young age to take care of public spaces and avoid littering. Public campaigns and sustainability education have raised awareness about the importance of cleanliness and waste reduction.

Customer Mapping: Identify the key stakeholders in the waste management system, including urban residents, waste management workers, local government authorities, and environmental organizations. Understand their needs, motivations, and pain points to tailor solutions that address their specific requirements.

Empathy Mapping: Create empathy maps to visualize the experiences of different stakeholders.

An empathy map typically includes four quadrants:

What users say: Direct quotes and feedback from stakeholders.

What users think: Insights into their thoughts and beliefs.

What users do: Observations of their actions and behaviors.

What users feel: Emotional responses and feelings towards waste management issues.

By incorporating these steps into the design thinking process, we can develop a sustainable waste management system that balances modern technology with community involvement, ultimately creating cleaner and healthier urban environments.

Customer and Empathy Mapping are essential tools for understanding stakeholders' experiences when designing a waste management system for urban areas. Let’s break them down:

1. *Customer Mapping*:This helps identify different user groups involved in waste management and their needs.

- *Urban Residents*:
- - *Needs*: Convenient waste disposal options, clear instructions for recycling, clean living environments, reliable waste collection.
- - *Pain Points*: Overflowing bins, lack of space for waste sorting, unclear collection schedules, lack of awareness about recycling.
- - *Waste Management Workers*:
- - *Needs*: Safe working conditions, better equipment, efficient routes, and manageable workloads.
- - *Pain Points*: Occupational hazards, long hours, heavy workloads, inconsistent support or outdated equipment.
- - *Local Authorities/Urban Planners*:
- - *Needs*: Efficient waste systems, budget-friendly solutions, and public cooperation.
- - *Pain Points*: Managing logistics, ensuring compliance, limited budgets, and public pushback.

2. *Empathy Mapping*:Empathy mapping focuses on understanding what these groups think, feel, see, hear, and do in relation to waste management.

For Urban Residents:-

Think & Feel:

- Frustrated when bins are overflowing.

- Confused about waste segregation rules.

- Feel concerned about environmental issues but unsure of their role.

- *See*:

- Overflowing bins in public areas.

- - Others not participating in recycling.

- - *Hear*:

- - Complaints from neighbors or building management about waste collection inefficiencies.

- - *Do*:

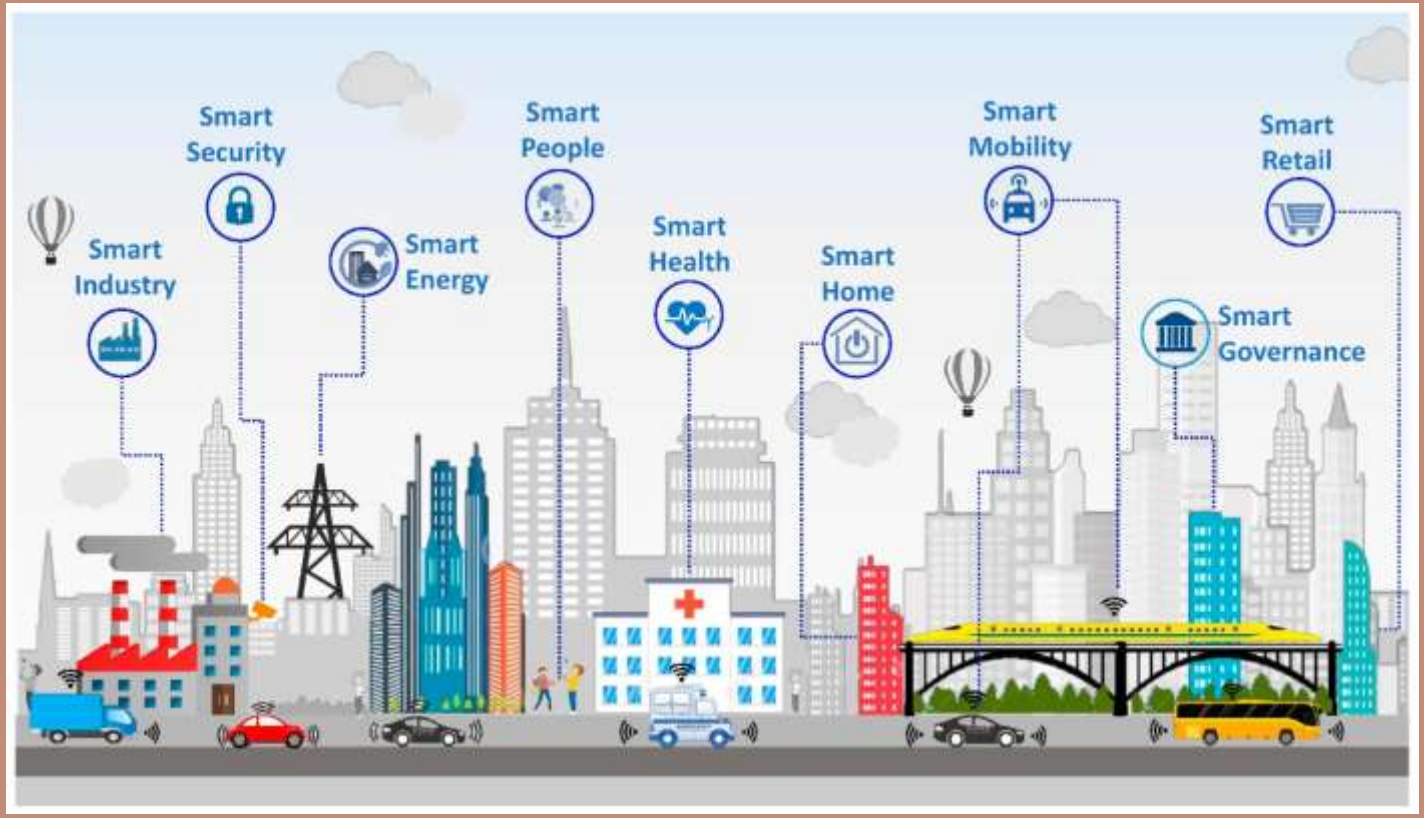
- - Sometimes fail to sort waste due to lack of convenience or awareness.

- - Occasionally engage in recycling, but only when it's easy

For Waste Management Workers:-

Think & Feel:

- Exhausted from heavy workloads and unsafe conditions.
- Frustrated when residents don't properly segregate waste.
- - *See*:
- - Hazardous waste not disposed of properly.
- - Inefficient collection routes leading to delays.
- - *Hear*:
- - Complaints from residents about collection timings and overflowing bins.
- - Instructions from supervisors but lacking clear strategies or tools.
- - *Do*:
- - Follow set routes and schedules but struggle with inefficiencies.
- - Work under pressure to meet deadlines while facing unsafe conditions.
- By using customer and empathy mapping, we can design a waste management system that caters to the needs of all stakeholders, ensuring convenience, safety, and efficiency for urban waste management.


Smart Industry
Smart Security
Smart Energy
Smart People
Smart Health
Smart Home
Smart Mobility
Smart Governance
Smart Retail

COMMUNITY INVOLVEMENT AND POLICY

Public Awareness Campaigns: Engage citizens through educational programs on waste sorting and sustainability. Schools, businesses, and households can contribute through initiatives like zero-waste challenges . Government Regulations: cleaner cities often have strict anti-littering laws and policies that are enforced rigorously. Heavy fines and penalties for littering or improper waste disposal ensure compliance among residents .“Polluter pays” policies also hold companies and individuals accountable for contributing to waste.

CONCLUSION

A sustainable waste management system for urban areas must balance modern technologies with community involvement. By reducing waste, encouraging recycling, and integrating sustainable practices into urban planning, cities can create healthier, cleaner environments that benefit both people and the planet.

THANK YOU

DONE BY:
24241A05ND GAYATRI
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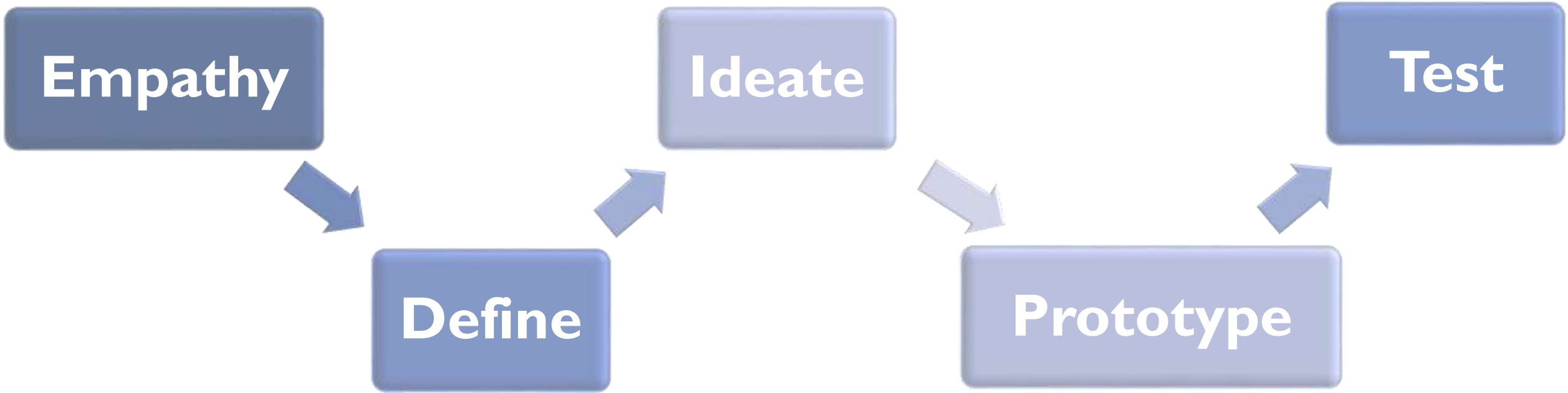
DESIGN THINKING PROCESS
IMPROVING TIME MANAGEMENT FOR HIGH SCHOOL STUDENTS

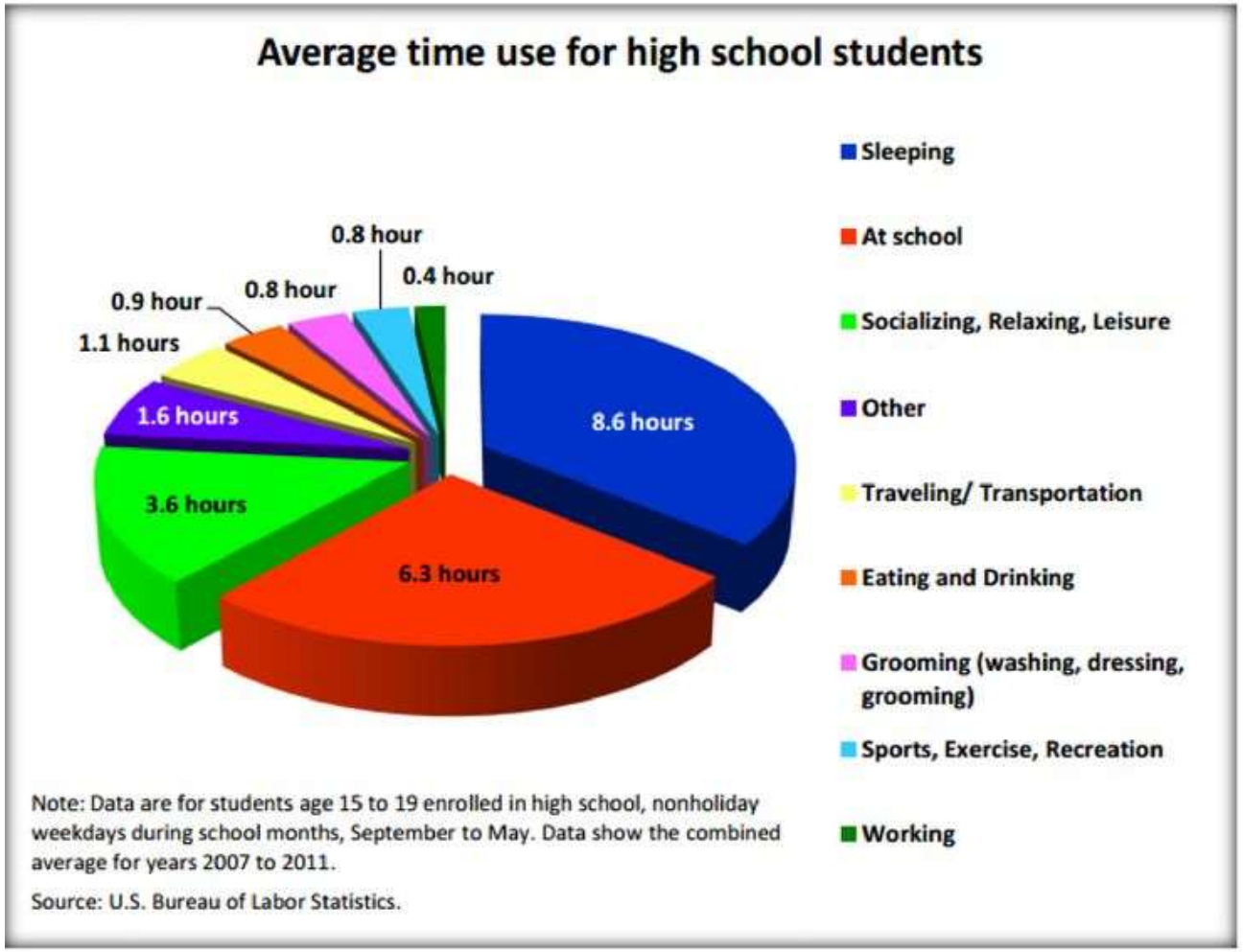
RIDA MOHAMMAD (CSE-I) ROLL NO. – 24241A05Q0

INTRODUCTION TO DESIGN THINKING

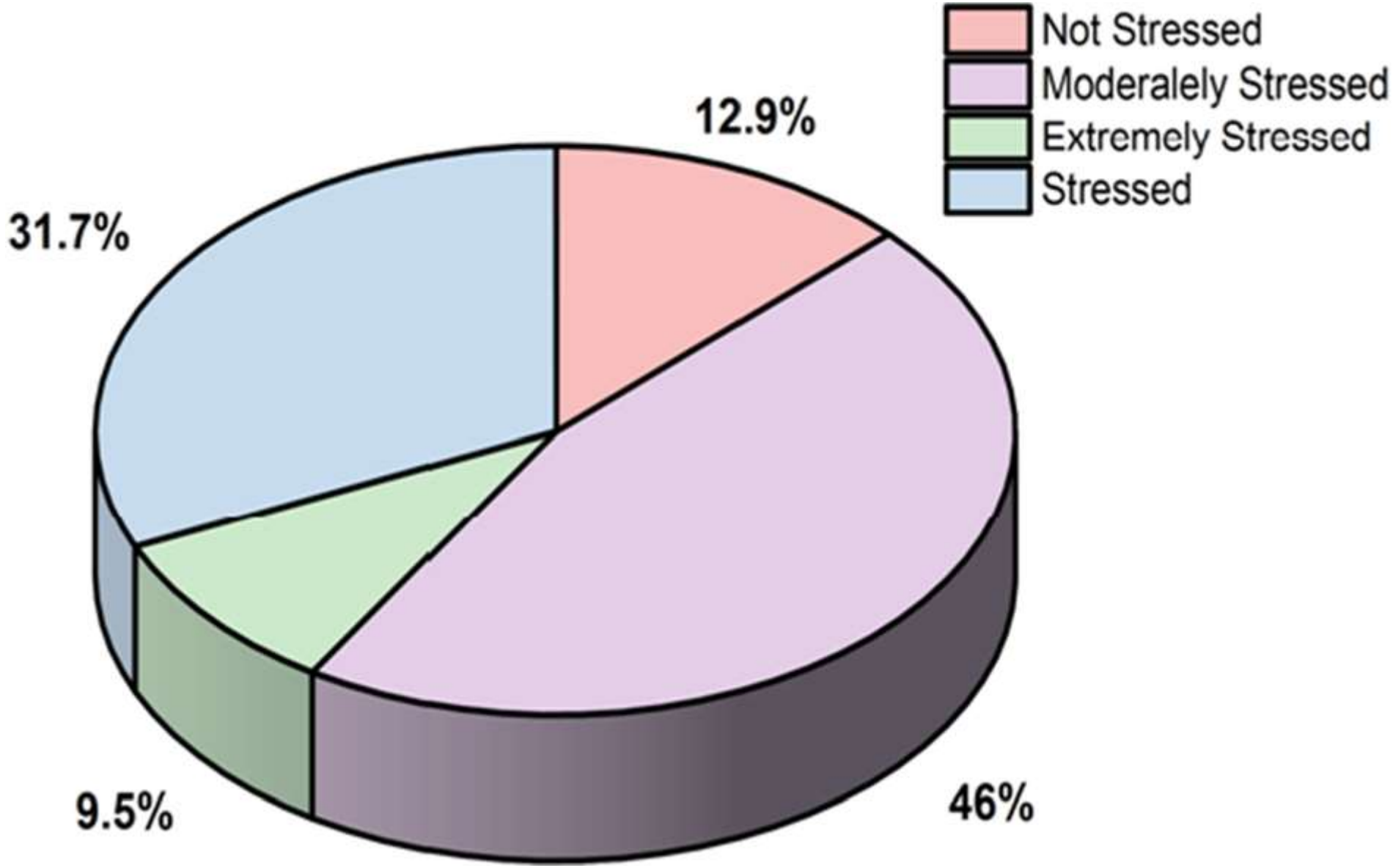
- Design Thinking is an iterative, user-centered approach aimed at solving complex problems by understanding the needs and experiences of users.
- Stages of Design Thinking:



EMPATHY & RESEARCH QUALITY



- Many students reported feeling overwhelmed by competing priorities.
- Lead to lower performance and even cause some students to switch majors
- A common complaint was the lack of effective planning tools.
- In the long term, can effect their physical and mental health.


Not Stressed
Moderalely Stressed
Extremely Stressed
Stressed
12.9%
31.7%
9.5%
46%

USER PERSONA: RANI PATEL

❑ Challenges

- **Time Management:** Overwhelmed by balancing academics, extracurriculars
- **Organization:** Frequently misplaces deadlines; lacks a systematic approach to tasks.
- **Poor Stress Management**

❑ Technology Use

- **Devices:** Smartphone and laptop **Apps:** Google Calendar, social media

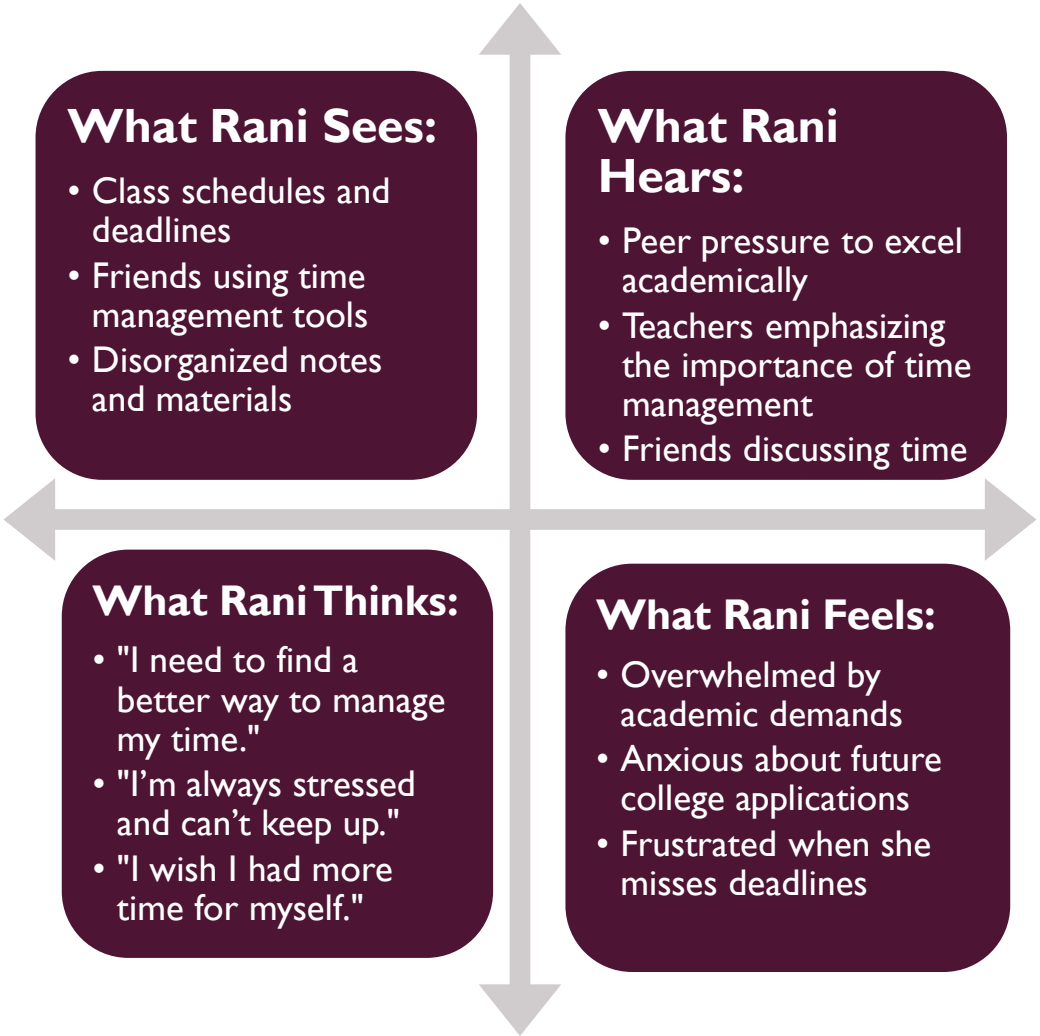
❑ User Needs

- **Time Management Tools:** A solution for organizing tasks and setting priorities.
- **Customizable Study Plans:** Flexible study schedules tailored to commitments.

USER JOURNEY MAPPING FOR RANI PATEL

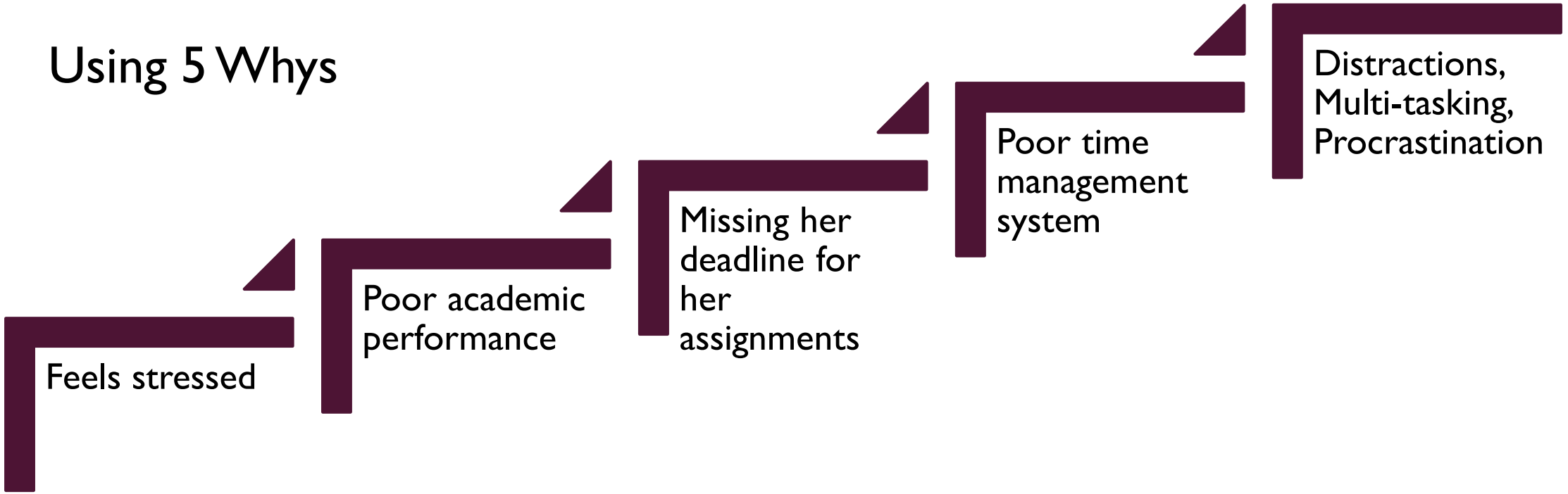
Stages	Actions	Emotions	Pain Points	Opportunities
1. Awareness	Learns about time management tools from peers	Curious, Hopeful	Uncertainty about which tools to try	Create awareness about available resources
2. Research	Searches online for apps and strategies	Overwhelmed, Frustrated	Too many options, difficulty finding the right fit	Simplify selection with curated recommendations
3. Adoption	Downloads a time management app	Excited, Anxious	Confusion about how to use the app	Provide easy onboarding and tutorials
4. Usage	Sets up tasks and schedules	Motivated, Confused	Struggles with prioritization	Offer features for task categorization
5. Review	Reflects on productivity and stress levels	Mixed feelings	Doesn't see improvement	Integrate feedback mechanisms for continuous improvement

EMPATHY MAPPING FOR RANI PATEL



PROBLEM DEFINITION

Using 5 Whys



Problem Statement: "High school students struggle to manage their time effectively, leading to stress, decreased academic performance, and missed deadlines."

IDEATION

Using brainstorming techniques

- Block notifications
- Digital Planner
- Time-blocking techniques
- Task Prioritization

PROTOTYPE DESIGN

❑**Selected Idea**:

•A digital time management app designed specifically for high school students.

❑**Features:**

•**Task Prioritization:** Allows users to categorize tasks by urgency and importance.

•**Calendar Integration:** Syncs with school calendars to incorporate deadlines.

•Block notifications of social media

TESTING PHASE

❑Iterative Changes Made:

- Added **customization features** based on user feedback (e.g., color coding for tasks).
- **Gamification Elements:** Includes rewards for task completion to encourage consistent use.
- Improved the **user interface** by simplifying navigation based on usability tests.

- **Final Prototype:** Showcase the improved app

CONCLUSION

- **Problem Statement:** Many high school students, like Rani Patel, struggle with effective time management, resulting in heightened stress, decreased academic performance, and difficulty balancing academics with extracurricular activities.

- **Solution:** Develop a **digital time management app**

- **Goal:** Empower students to take control of their time, reduce stress, and enhance their academic success.

Q&A SESSION