**ANALYSIS AND DESIGN OF USER INTERFACES**

**LIP READING REPORT**

**-GROUP KS-**

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6. **PROJECT OVERVIEW**

The project, a web platform for lip-reading, was developed as part of the "Analysis and Design of User Interfaces" course. Its primary aim was to leverage advancements in user interface design and data analysis to create a system capable of interpreting lip movements accurately. By doing so, the platform sought to address accessibility challenges, particularly for individuals with hearing impairments, while also exploring the integration of cutting-edge technologies into intuitive and user-friendly interfaces.

The scope of the project encompassed multiple aspects:

* Designing a seamless and accessible user interface that prioritizes usability.
* Developing a functional prototype capable of interpreting lip movements.
* Analyzing user interactions through structured techniques such as card sorting and observation to refine the design further.
* Implementing the platform as a proof of concept for practical usage.

This comprehensive approach ensured a balance between theoretical understanding and practical application, making the project a well-rounded learning experience.

**1.1 Team Members and Their Roles**

The project was a collaborative effort involving four team members, each contributing unique skills and expertise to ensure its success:

* **Sude-Rümeysa:** Alongside Rümeysa, they were responsible for conducting data collection using techniques like card sorting and observation. These analyses provided crucial insights into user behavior and preferences, directly influencing design decisions.
* **Ahmet-Melek**: Focused on prototyping, translating the initial design ideas and user insights into a tangible and interactive model. Their work provided the foundation for implementation. Then they took charge of the implementation, ensuring the prototype was developed into a functional web platform. They addressed technical challenges and fine-tuned the system for operational effectiveness.

This well-coordinated team dynamic combined research, design, and technical execution, culminating in a project that not only met academic requirements but also had real-world applicability.

1. **USER AND TASK ANALYSIS**

To ensure a deep understanding of the target users and their interaction with the platform, the project employed a combination of **user research methods** and **task analysis techniques**:

1. **User Research Methods**
   * **Observation:**  
     This method allowed us to directly observe how potential users interacted with the platform. By recording their actions, challenges, and behaviors, we identified areas for improvement in navigation, usability, and feature accessibility.
   * **Card Sorting:**  
     Participants were asked to organize content categories, such as "Upload Video," "Settings," and "Help," into logical groups. This helped us understand user preferences for information architecture, ensuring an intuitive platform layout.
2. **Task Analysis Methods**
   * **Workflow Analysis:**  
     We mapped out the steps users take to achieve core tasks, such as uploading a video or accessing the results. This analysis revealed inefficiencies in the process and guided us to simplify and streamline interactions.
   * **Hierarchical Task Analysis (HTA):**  
     Breaking down tasks into sub-tasks provided a structured view of how users complete their goals, such as signing up, uploading content, or interpreting results. This helped refine both interface design and system functionality.

The combination of these methods enabled us to approach user needs holistically, balancing research depth with actionable insights.

**2.1 Key Findings from the Analysis**

1. **Navigation Challenges:**
   * Many users struggled to locate key features like the video upload section due to unclear labeling and cluttered design.
   * Users frequently clicked on non-clickable elements, indicating a need for clearer interface feedback.
2. **Information Grouping Preferences:**
   * Card sorting revealed strong associations among features such as "Upload Video," "Results," and "Settings," emphasizing the need for logically grouped menus.
3. **Task Complexity:**
   * Tasks such as signing up and uploading videos were perceived as too complex, with users abandoning the platform due to issues like mandatory payment requirements or third-party login systems.
4. **Language and Accessibility Needs:**
   * A significant number of participants requested a Turkish language option and found the lack of multilingual support a barrier to usability.
5. **Aesthetic Preferences:**
   * Users desired a more visually appealing interface, with consistent color schemes and modern design elements.

**Refined Approach**

Based on the findings, we revised our design and development strategy:

* Simplified the navigation structure, emphasizing ease of use.
* Introduced user-friendly error messages and clearer feedback mechanisms.
* Optimized workflows for primary tasks like signing up and uploading content.
* Incorporated multilingual support and trial versions to increase accessibility.

This user- and task-centered approach ensured that the platform addressed real user needs while providing an efficient and enjoyable experience.

1. **DATA GATHERING PROCESSES**

**3.1. Techniques Used and Why They Were Chosen**

To collect meaningful insights and guide the design of the platform, we employed two key data gathering techniques:

1. **Observation:**
   * **Why Chosen:**  
     Observation allowed us to directly witness user interactions with the platform, capturing real-time challenges and behaviors that users might not articulate in a survey or interview. This method was ideal for identifying usability issues, navigation challenges, and areas of confusion.
   * **How It Was Conducted:**  
     Participants were asked to complete specific tasks, such as signing up, uploading a video, and exploring features, while their actions and reactions were observed and recorded.
2. **Card Sorting:**
   * **Why Chosen:**  
     Card sorting provided a structured way to understand how users categorize and prioritize content. This method was essential for designing an intuitive information architecture that aligned with user mental models.
   * **How It Was Conducted:**  
     Participants were given labeled cards representing key platform features, such as "Upload Video," "Settings," "Results," and "Help." They were instructed to group these into categories that made sense to them.

These techniques were selected for their complementary strengths: observation captured the “what” of user behavior, while card sorting illuminated the “why” behind organizational preferences.

**3.2. Summary of Data Collected**

1. **From Observation:**
   * **Navigation Issues:**  
     Users struggled to locate the "Upload Video" section and often clicked on non-functional elements.
   * **Feature Accessibility:**  
     Many participants abandoned tasks due to unclear instructions or mandatory third-party authentication requirements (e.g., GitHub sign-in).
   * **Language Barriers:**  
     The lack of Turkish language support deterred several users from engaging further.
2. **From Card Sorting:**
   * **Grouping Preferences:**  
     Participants frequently grouped "Upload Video," "Results," and "Help" together under a "Core Features" category.  
     Similarly, "Settings" and "Account Management" were grouped as administrative functions.
   * **Category Labels:**  
     Suggested labels included "Dashboard," "Tools," and "Preferences," which informed the naming conventions for navigation menus.

**Key Insights**

* Observation revealed critical usability and accessibility issues that required immediate attention.
* Card sorting highlighted user expectations for logical and intuitive grouping of features, guiding the development of a user-friendly interface.

These findings directly shaped the platform's structure and design decisions, ensuring it met user needs effectively.

**4. DATA ANALYSIS AND INTERPRETATION**

**4.1. Insights Derived from the Data**

The data collected through observation and card sorting revealed several key patterns and user needs:

1. Navigation and Usability Issues:
   * Many users struggled to locate core features such as the video upload section. This highlights the need for clearer menu structures and better visual cues.
   * Users clicked on non-functional elements, suggesting a lack of feedback mechanisms in the interface.
2. Accessibility and Inclusivity:
   * The absence of a Turkish language option was a significant barrier for non-English speakers.
   * Mandatory third-party sign-in options, such as GitHub, discouraged users who did not have accounts or were unwilling to sign up.
3. Logical Grouping of Features:
   * Card sorting demonstrated that users naturally associate "Upload Video," "Results," and "Help" under a single functional group, which should guide the platform’s navigation design.
   * Settings-related features like "Account Management" and "Preferences" were categorized together, reflecting user expectations for administrative controls.

**4.2. Recommendations Based on Insights**

1. Simplify Navigation:
   * Reorganize the menu to emphasize core features like video uploads, results, and settings.
   * Provide more intuitive labels and visual cues for frequently used functions.
2. Enhance Accessibility:
   * Include multilingual support, starting with Turkish, to accommodate a diverse user base.
   * Offer alternative sign-in options to reduce reliance on third-party platforms.
3. Improve Feedback and Interaction:
   * Design clickable elements with clear visual feedback (e.g., button states, hover effects).
   * Implement error messages that guide users rather than create frustration.

**4.3. Simulated Visual Representations**

**metin, ekran görüntüsü içeren bir resim

Yapay zeka tarafından oluşturulmuş içerik yanlış olabilir.**

**metin, çizgi film, ekran görüntüsü içeren bir resim

Yapay zeka tarafından oluşturulmuş içerik yanlış olabilir.**

**5. DESIGN PROCESS**

**o Wireframes, mockups, or prototypes created.**

**o Design decisions and rationale.**

**6. IMPLEMENTATION**

**o Description of the implemented interface or product.**

**o Challenges faced and how they were addressed.**

**7. EVALUATION**

**o Methods used for evaluation.**

**o Results and suggestions for improvement.**

**8. CONCLUSION**

**o Summary of the project outcomes.**

**o Reflection on the process and lessons learned.**

**9. APPENDICES**

**Raw data, survey questions, interview transcripts, or additional resources.**