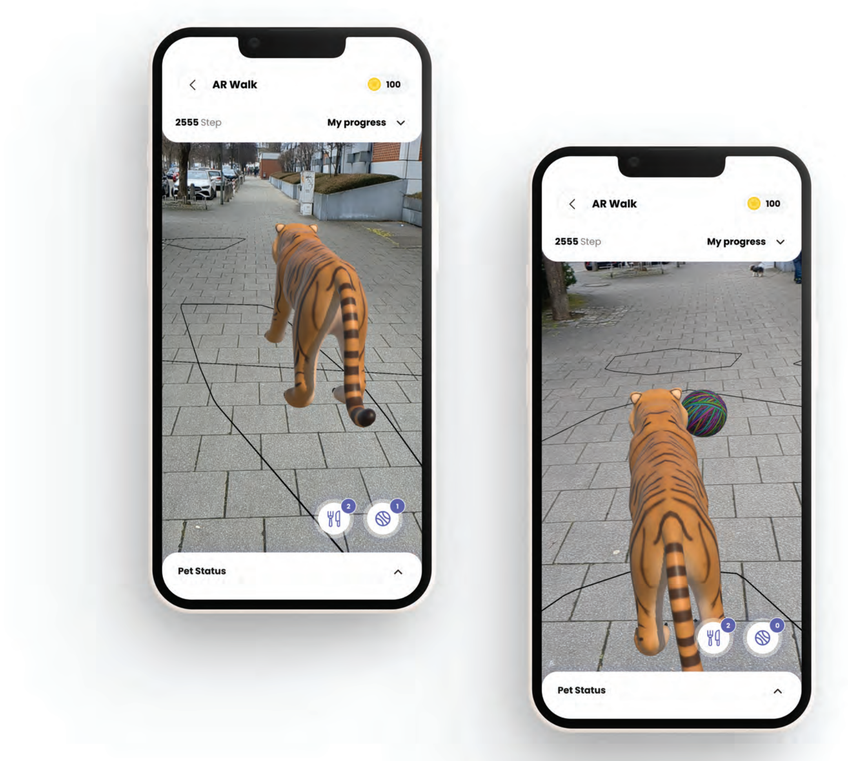
Takwa Ismaeel *Master Thesis 2025*

AR-Enhanced Walking Tracker



AR Pet Interaction screens: Virtual pet walking and playing with toys to motivate users.

Abstract:

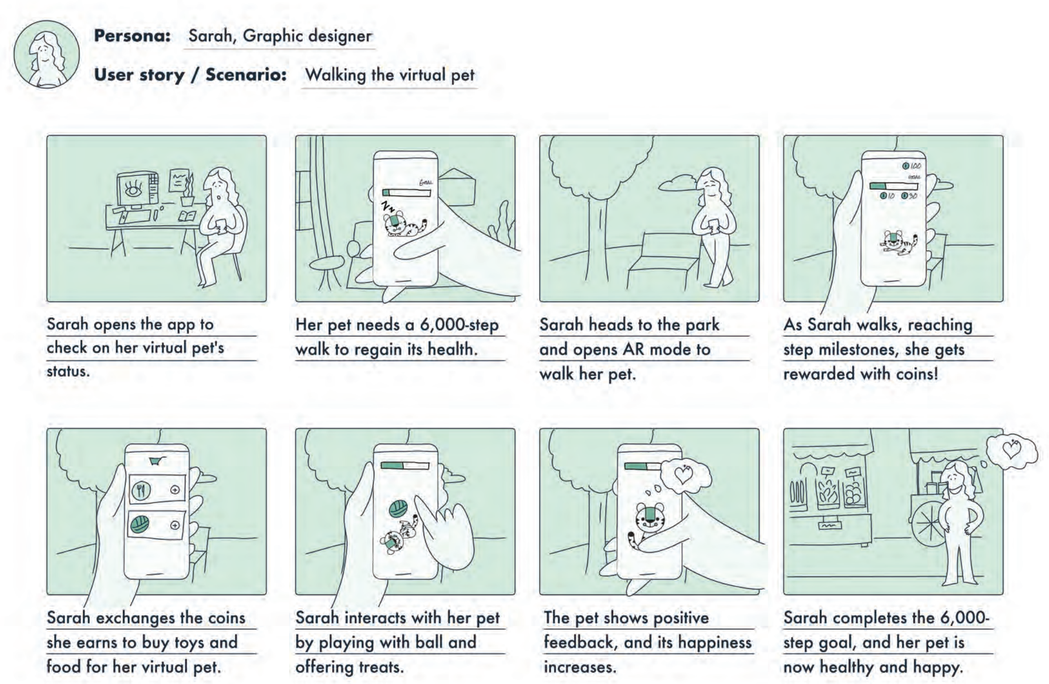
The integration of augmented reality (AR) into fitness applications has the potential to enhance user engagement and motivation, addressing key challenges in promoting consistent physical activity. This study explored the impact of an AR-enhanced walking tracker application compared to a standard walking tracker app. Guided by the design thinking methodology, the research focused on understanding user needs and developing innovative solutions to enhance the walking experience.

The study involved two user groups: one using the AR-enhanced app and the other using a standard walking tracker. Data collection encompassed step counts, user engagement levels, and qualitative feedback to assess the influence of AR features on user behavior. Findings suggest that the AR-enhanced app offered a more enjoyable and engaging experience, with participants reporting heightened motivation and novelty compared to the standard app.

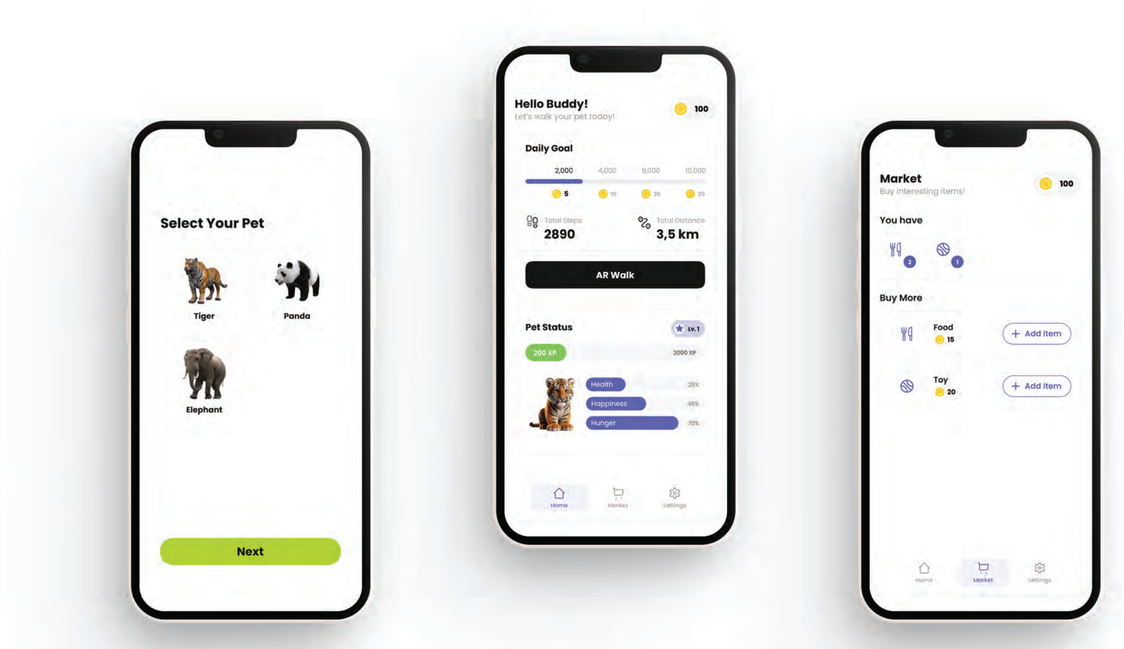
This research highlights the potential of AR to enrich the user experience in fitness applications and provides valuable insights for UX designers and developers aiming to leverage emerging technologies. Future investigations can further explore the long-term impact of AR-enhanced features and refine their application to maximize user engagement and goal attainment.

Special Focus:

This study follows the design thinking methodology, beginning with empathy and defining phases to understand the needs of desk-based workers aged 25 to 45, who often struggle with maintaining physical activity. User interviews revealed key challenges such as lack of motivation and difficulty staying active. These insights led to the creation of a prototype app with augmented reality (AR) features. The app allows users to choose a virtual pet to accompany them on walks, motivating them through interactive features. Users earn coins by walking, which can be used in the app's market to engage with their pet, making the experience gamified. This combination of AR and gamification was designed to address motivational barriers.



User Storyboard: Journey from app interaction to achieving fitness goals.



App Screens Overview: Key interfaces for pet selection home, and market.

Result and Future Work:

This study demonstrates the potential of augmented reality (AR) in fitness applications. While the small sample size and short testing period limit the generalizability of the findings, the research provides valuable insights into the integration of AR into fitness apps. Participant feedback highlighted the appeal of AR features and suggested key areas for improvement, including more accurate step tracking, enhanced pet interactions, and practical hands-free functionality. Future research could expand on these findings by including a more diverse participant pool, extending the testing period, and implementing voice-based interactions to minimize the need for prolonged mobile device use. By addressing these aspects, AR-enhanced fitness applications can evolve into versatile and impactful tools for promoting physical activity and fostering healthier lifestyles.

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