

Developing a Mobile App to Self-Manage Postural Orthostatic Tachycardia Syndrome

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Introduction and motivation

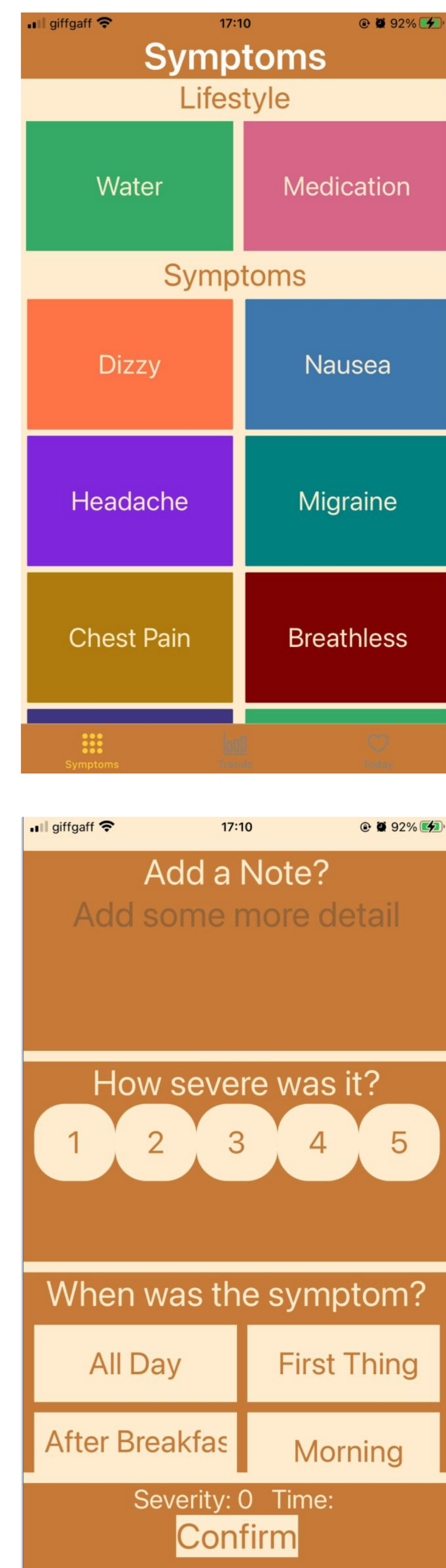
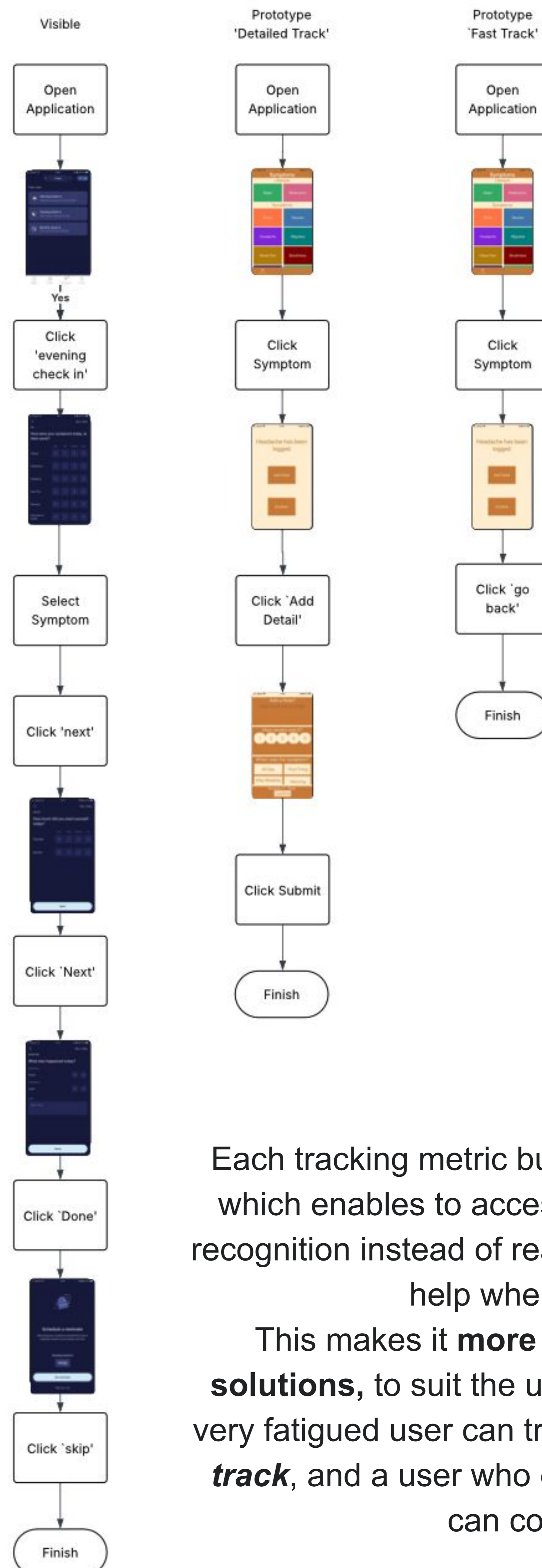
POTS is a form of dysautonomia affecting mainly young women^[4], characterised by tachycardia w/o hypotension upon standing. Each type has different underlying mechanisms, but all significantly impact quality of life. There is **no cure**, and current treatments rely on **symptom management**. However, no standard approach exists due to limited research and patient variability. Emerging evidence suggests **mobile health applications**, successfully used in managing other chronic conditions, could help POTS patients maintain personalised treatment regimes and improve engagement and outcomes. Research in this area remains limited, as evidenced by a systematic review of 82 articles (filtered from 960 hits) that did not include the POTS population^[3].

Study Design

We conducted an online survey to identify the needs of POTS patients when using health tracking technology. According to the literature, current solutions are inadequate due to the additional cognitive demands of the condition^[1,2]. We aimed to understand the limitations of existing apps used in the POTS community (e.g., *Visible*). To lower the energy commitment for participants, an initial 3-part survey released. Following a positive response of 55 participants in three days, a second phase with additional questions was released. The long-form version of the survey was completed by 36 participants. The key requirements identified were: use of biometric data, **reduction of energy cost when using the app**, and **reduction of emotional distress for the user**.

Implementation & Evaluation

We used the number of 'clicks' to measure the speed with which the application could be used. To achieve *single-click tracking*, we omitted a 'home screen' as this would require the user to navigate to the tracking page, thus increasing the time and energy burden. Instead, the first screen seen by the user is the symptom tracking page.



Each tracking metric button has a unique colour, which enables to access the app through colour recognition instead of reading words (which might help when experiencing brain fog.)

This makes it **more adaptable than existing solutions**, to suit the user's energy level (e.g., a very fatigued user can track a symptom via a **fast track**, and a user who can add additional details can complete a **detailed track**.)

Conclusion

We addressed a gap in existing mobile health apps for POTS by developing a user-centered, low-energy interface to improve symptom tracking. Our survey of 89 patients highlighted these needs. Our prototype reduces cognitive load and energy expenditure compared to current solutions, illustrating a promising direction for future POTS-specific health apps.

References

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