Carbohydrate-counting Augmented Reality Buddy

Singapore Healthcare Management 2022

KK Women's and Children's Hospital
SingHealth

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Introduction

Carbohydrate-counting is an important skill for people living with Type 1 Diabetes. Accurate portion estimation is not an easy task for adults, let alone children. With increasing advancement in Augmented Reality (AR), studies have suggested that such technology-based aids may provide a ***convenient*** and ***effective*** way to assist in food portions estimation for carbohydrate-counting.

A carbohydrate-counting mobile application CarB™ was developed based on AR principles with ***local food content***. The aim was to provide our paediatric patients with Diabetes, true-scaled food items as reference to estimate their carbohydrate portions.

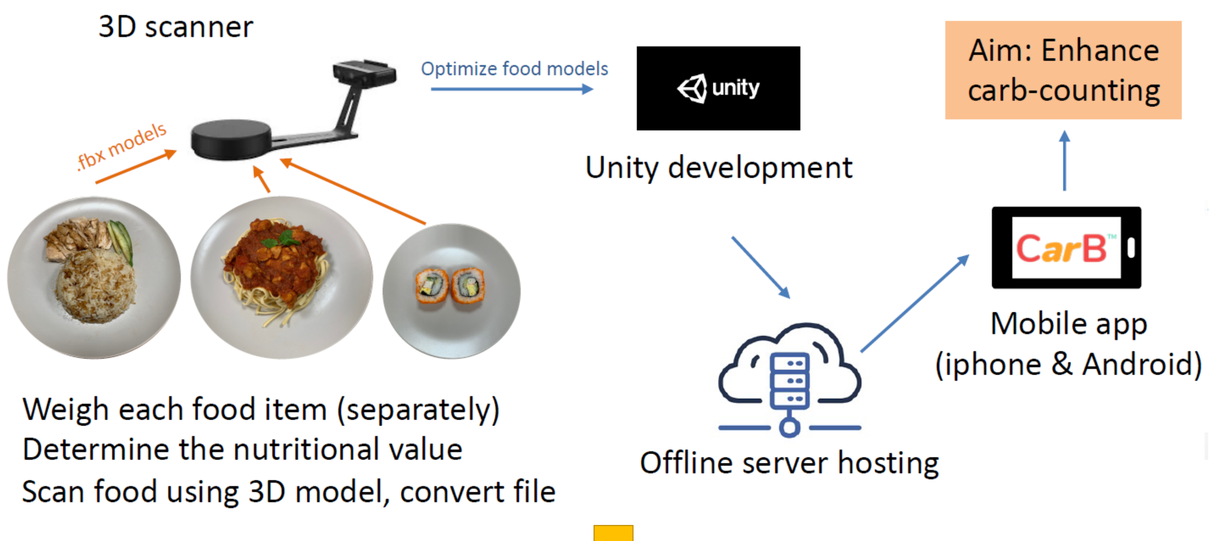
Methodology

Development process

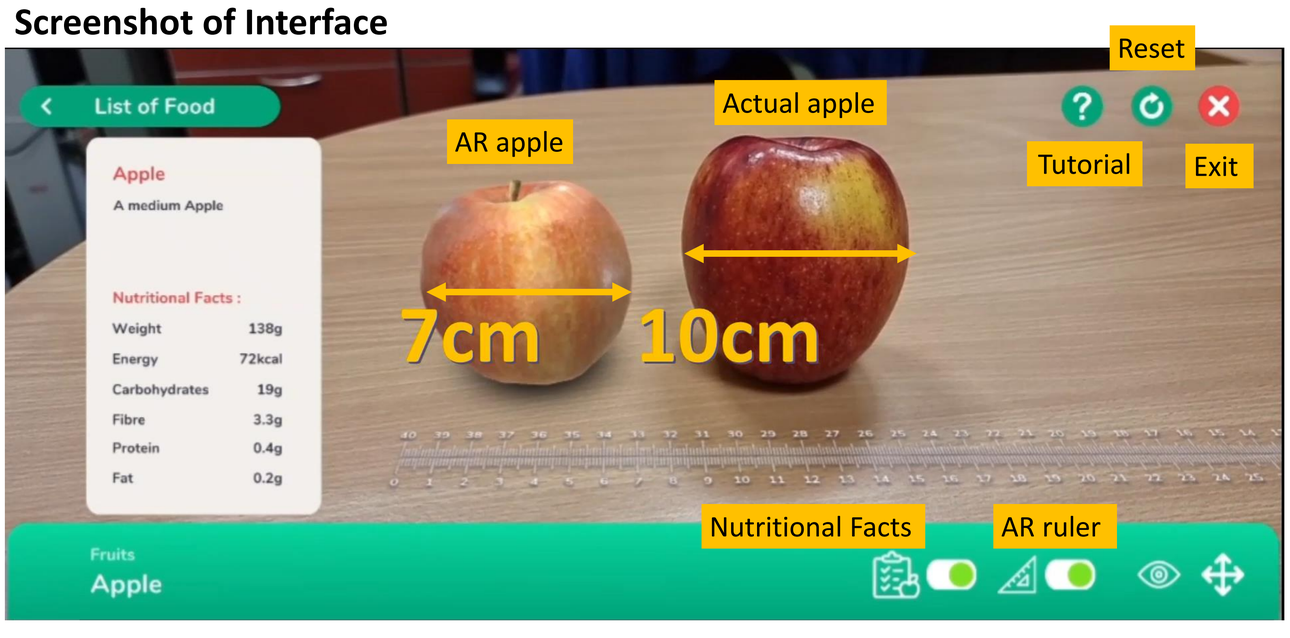
53 curated local food items (by KKH dietitians)

In five food categories: 1. Rice & Grains, 2. Noodles & Pasta, 3. Fast Food, 4. Snacks, 5. Fruits

Actual food scanned using a 3D Scanner (EinScan-SE)



Screenshot of Interface

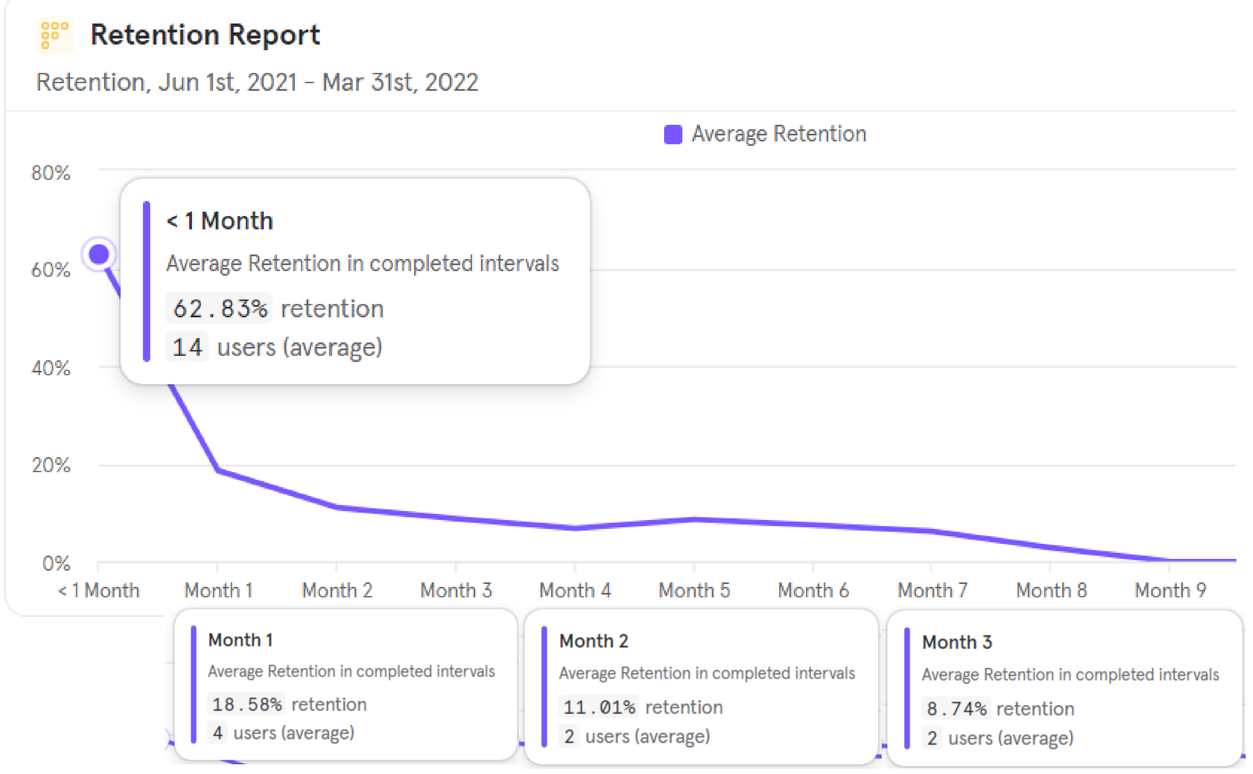


Pilot use (n=25)

Track App Usage (Google Analytics)

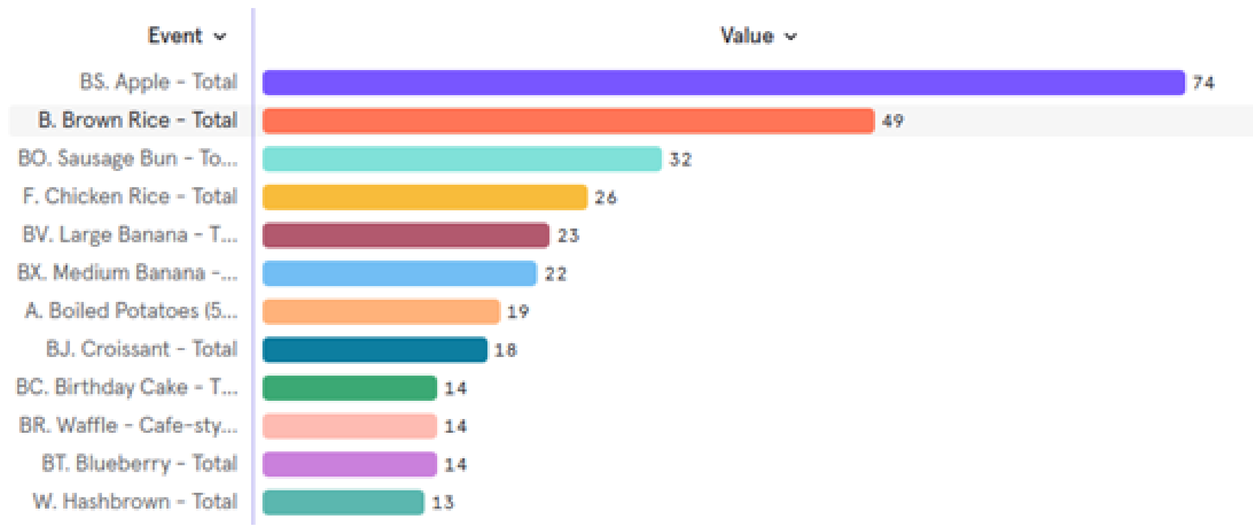
Results

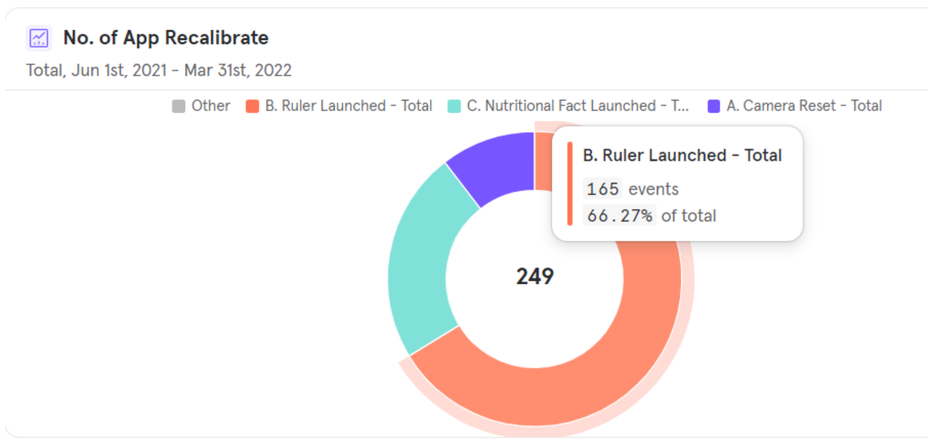
Usage in the last 6 months



- Captured up to 70% of repeated launches in first 2 days of use; usage dwindled exponentially with time.

Frequency of food items and features used





- Patient and staff feedback were largely positive
- Some difficulties at the start, in calibrating surface to augment food item
- Limited range of foods currently available in the app.

Conclusion

CarB™ is a convenient and educational tool in engaging patients and their caregivers on counting carbohydrate for self-empowerment to insulin dosing. User feedback will be further explored to expand food variety, which could increase the app's usage and help towards enhancing clinical outcomes with this as an effective tool.

How to use CarB™ >>>

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