

A Home Food Inventory App (eHFI) with Pictures and Audio for Low Literacy Somali Households



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Sample of the Original Home Food Inventory

Objective

- Previously, a home food inventory (HFI) checklist assessing foods in the home was validated in low-income Somali immigrant families in Minnesota. However, the tool appeared inaccurate for participants with low English and Somali literacy levels.
- Therefore, a new data collection procedure using pictures and audio was developed to allow accurate and independent completion of the inventory among low literacy participants.
- The adapted HFI in a rich media interface was tested in the target population.

Note, please mark whether each vegetable present is fresh or frozen (mark all that apply)

1. Vegetables

Yes	No		Fresh (Mark all that apply)	Frozen
1 <input type="checkbox"/>	0 <input type="checkbox"/>	a. Asparagus	1 <input type="checkbox"/>	1 <input type="checkbox"/>
1 <input type="checkbox"/>	0 <input type="checkbox"/>	b. Beets	1 <input type="checkbox"/>	1 <input type="checkbox"/>
1 <input type="checkbox"/>	0 <input type="checkbox"/>	c. Bell peppers (example: green, red)	1 <input type="checkbox"/>	1 <input type="checkbox"/>
1 <input type="checkbox"/>	0 <input type="checkbox"/>	d. Broccoli	1 <input type="checkbox"/>	1 <input type="checkbox"/>
1 <input type="checkbox"/>	0 <input type="checkbox"/>	e. Cabbage	1 <input type="checkbox"/>	1 <input type="checkbox"/>
1 <input type="checkbox"/>	0 <input type="checkbox"/>	f. Cauliflower	1 <input type="checkbox"/>	1 <input type="checkbox"/>

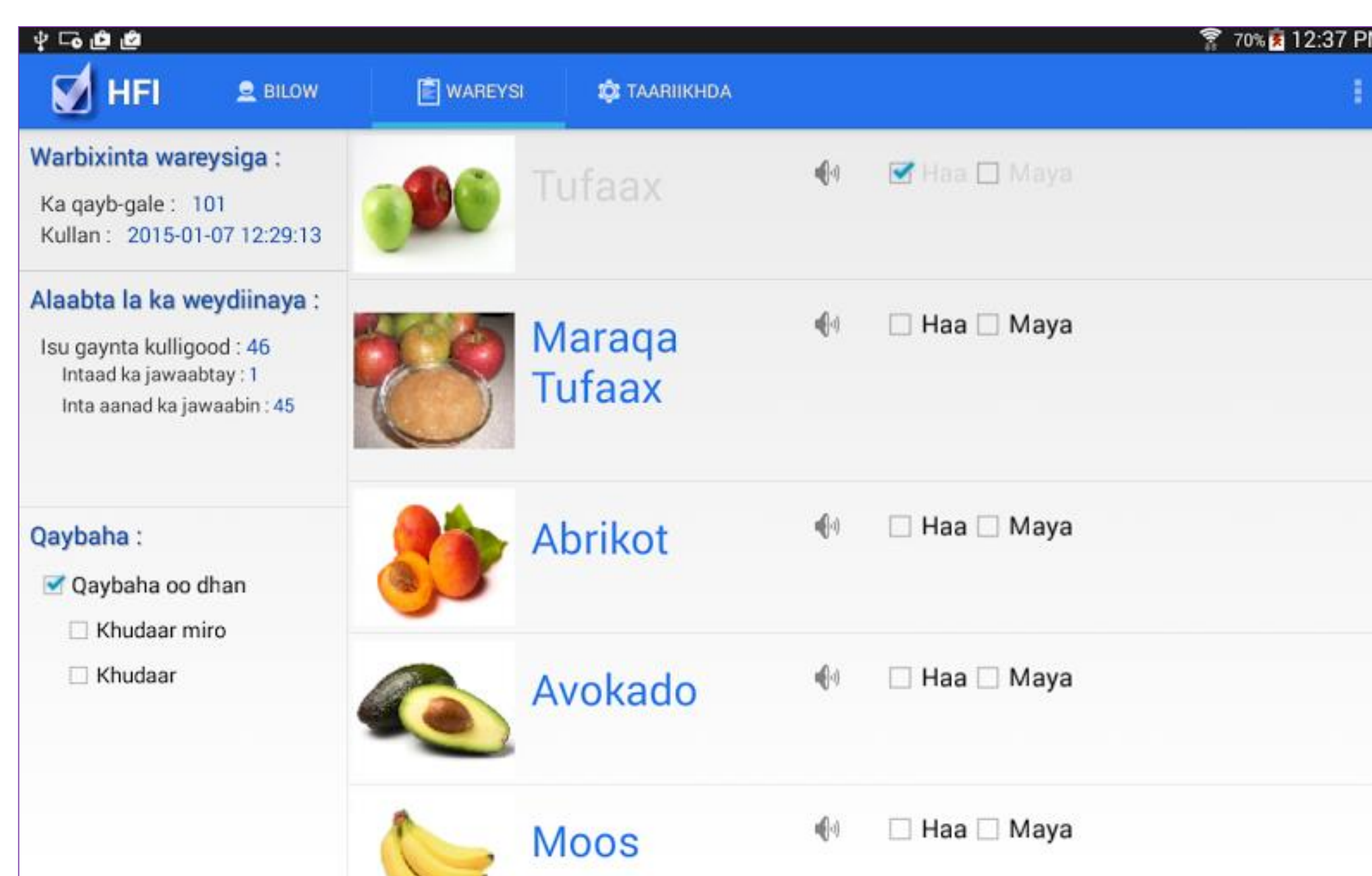
Each line of direction and response option will have a finger-touch link to an audio file

Each vegetable or fruit will have an image file available to open

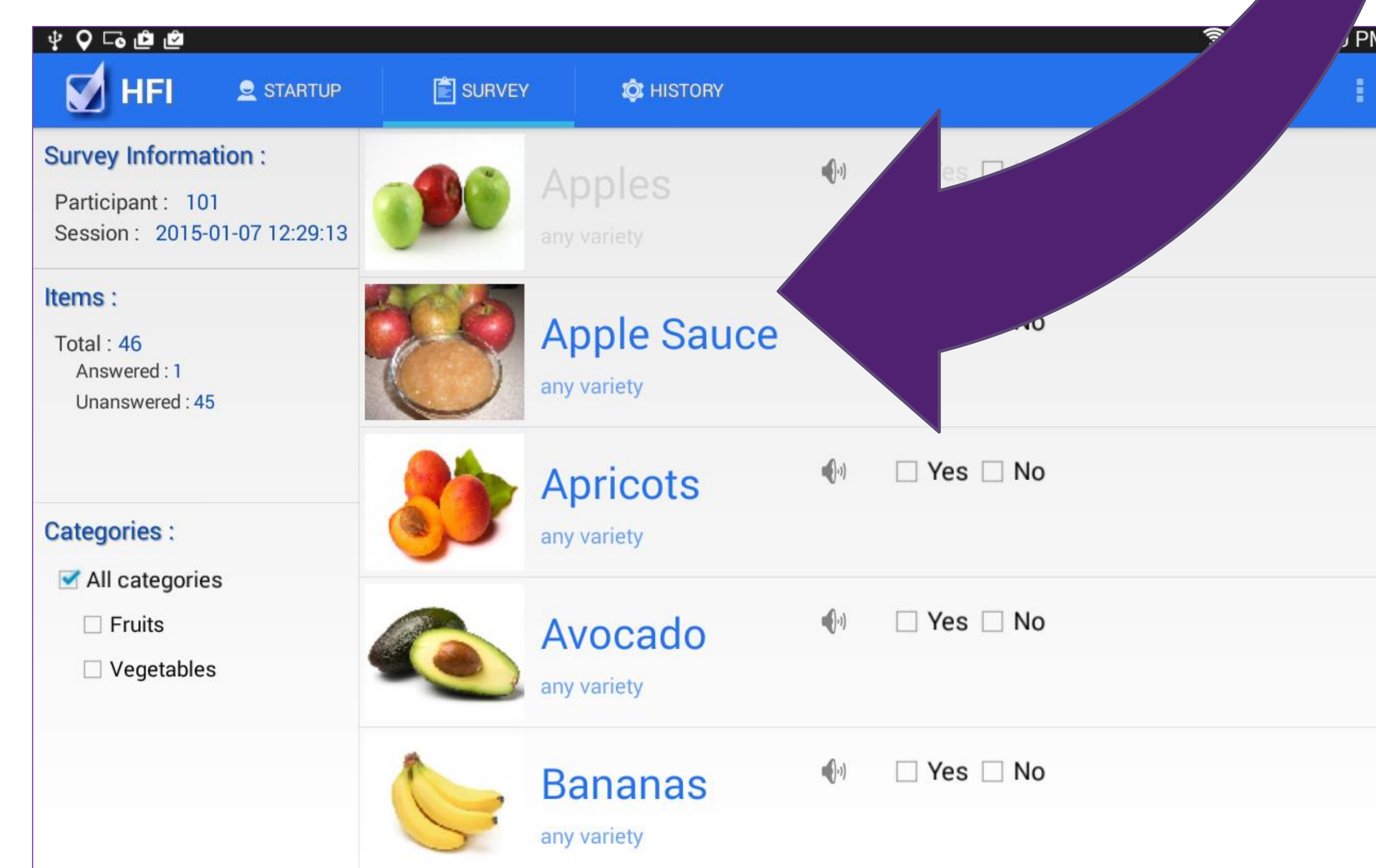
Conversion to Rich Media Interface

Methods

- Two categories (fruit and vegetables, 56 items total) of the existing HFI were selected for pilot testing the present technology.
- Two Somali-speaking university students translated, recorded audio in both English and Somali and identified images to accompany each fruit or vegetable item.
- Text, audio and visual files were integrated into a new HFI application for a tablet device (eHFI). Users could view an image file or select an audio file that 'read aloud' the item in English or Somali. The user selected yes (present) or no (not present), available in audio and icon for each food item. eHFI stored user responses and the pattern of use was uploaded to a secure website.
- eHFI was vetted by community partners and community tested with 10 Somali speaking families by the two Somali undergraduate students.



Somali Screenshot



English Screenshot

Results

Gathering of image files, translation and recording audio files for all of the original HFI items in two languages was completed in 29 hours. The eHFI was tested in the field by 8 individuals (5 Somali). Time to complete ranged from 4-8 minutes. Feedback on audio quality, size and type of images, and ability to follow direction was solicited and incorporated. Key feedback was related to challenges for participants not accustomed to a tablet interface. Community field testing with 10 families revealed ease of administration once demonstrated and further adjustment of icon size.

Discussion

eHFI advances data collection among low literacy populations. Although developed specifically for Somali families, eHFI can be adapted easily to other language groups and survey tools to improve the accuracy, decrease burden for participants, improve efficiency for data collection and entry. Next steps include criterion validation in the target population, adding additional food items, and preparing template for other languages.

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