SelfLens: A Portable Tool to Facilitate All People in Getting Information on Food Items

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Introduction

• Product labels on food packaging contain an ever-increasing amount of information.
• Selecting food items while shopping, or storing and cooking can be a very difficult task for people with special needs.
• The amount of information and also the features of the text can make it difficult or impossible to read, in particular for those with visual impairments or the elderly.

Motivation

• Several tools or applications are available on the market to support this type of activity (e.g. barcode or QR code reading) → they are limited and may require specific digital skills.
• Repeatedly using an application to read the label contents can require numerous steps on a touch-screen → time-consuming and unpractical.

Goal

To propose a simple portable assistive technology tool which:

1) can be used by anyone, regardless of their digital personal skills
2) does not require a smartphone or complex device
3) is a low-cost solution for the user

SelfLens

Proposed tool as a personal assistive technology to:

• use products and items both at home and in the shop, especially in getting specific information on the product itself.
• be used by elderly, partially-sighted, blind and hearing-impaired people to access detailed information on a product (usually available on its label)
• provide information on the (a) name and brand, (b) a variety of items such as ingredients, allergens, etc., (c) prices and discounts, and (d) instructions or other information about the product usage.

The device

• offers product recognition, information and purchase
• looks like a popular remote control that can be easily held in one hand
• works simply by (1) pointing at the product and (2) pressing one or two buttons
• provides information both via audio feedback and text on a small screen.

Features and functions

• Simple and practical interaction: minimal User Interface (two buttons, one display, and a speaker),
• Portable and lightweight: the tool looks like a small remote control
• Multi-purpose functions: the tool provides (1) information reading and (2) purchasing function
• Audio and visual feedback: messages are provided via both aural and visual perception
• Code recognition: a specifically-designed code to mark any product and to overcome some limitations of the existing QR codes or barcodes
• Use of the two buttons: functions according to the type and number of presses

Conclusions

• A portable personal device named SelfLens is proposed as a type of potential assistive technology to obtain information on food items and products.
• SelfLens has been designed to be (1) easy to use for all, (2) portable and practical, (3) suitable for various types of needs thanks to the audio and visual feedback.
• The proposed tool differs from the existing solutions in that 1) digital skills are not required 2) it can be used by anyone, not just a single category of user.
• SelfLens can offer the elderly and people with disabilities the opportunity to become more autonomous when shopping and using food products in the home.