

## Effective Nutrition Label Use on Smartphones

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**Abstract :** Research on nutrition label use identifies four factors that impede comprehension and retention of nutrition information by consumers: label's location on the package, presentation of information within the label, label's surface size, and surrounding visual clutter. In this paper, a system is presented that makes nutrition label use more effective for nutrition information comprehension and retention. The system's front end is a smartphone application. The system's back end is a four node Linux cluster for image recognition and data storage. Image frames captured on the smartphone are sent to the back end for skewed or aligned barcode recognition. When barcodes are recognized, corresponding nutrition labels are retrieved from a cloud database and presented to the user on the smartphone's touchscreen. Each displayed nutrition label is positioned centrally on the touchscreen with no surrounding visual clutter. Wikipedia links to important nutrition terms are embedded to improve comprehension and retention of nutrition information. Standard touch gestures (e.g., zoom in/out) available on mainstream smartphones are used to manipulate the label's surface size. The nutrition label database currently includes 200,000 nutrition labels compiled from public web sites by a custom crawler. Stress test experiments with the node cluster are presented. Implications for proactive nutrition management and food policy are discussed.

**Keywords :** mobile computing, cloud computing, nutrition label use, nutrition management, barcode scanning

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