Introduction And Background  
INTRODUCTION  
It has been richly noted that information technology could catalyze an important set of benefits in the  
healthcare area which would include improving the quality and reducing the cost of healthcare. The  
emergence of sensor-rich powerful smart phones to provide a rich set of user contextual information in real  
time made it feasible to provide effective and affordable healthcare to nearly everyone via smartphones.  
More specifically, well-designed mobile phone applications can empower individuals to proactively embrace  
health and wellness. No longer is the health care system made of a reactive system or placed sitting back  
waiting for medical attention to surface via an ER visit. What once belonged to the clinic is now patient-  
centered care. What once focused on the disease agenda is now wellness in health care.  
Based on the sheer number of excellent justifications for applying smartphones, cloud computing, mobile  
augmented reality and other information technologies to improve health and well-being in society, this paper  
examines the interactive, creative, and user-friendly health mobile applications. Previous studies have  
clearly established a correlation between low levels of nutritional intake and the rising prevalence of  
unhealthy conditions such as obesity and lifestyle diseases such as heart disease and diabetes. A lack of  
healthy food consumption coupled with physical inactivity is two key causes of an epidemic of overweight  
persons and cases of obesity in the United States. The betterment of a person's diet begins with the  
betterment of the nutritional quality of food he or she chooses. This makes it nearly impossible for the  
average consumer to make better choices when a food supply contains tens of thousands of processed and  
packaged foods with different messages on bags, boxes, bottles, jars, and cans. Consumers report they  
know what is healthy and what isn't, but say they are confused over how to implement general nutritional  
advice.

The application of technology in diet management has been perceived as a useful tool and resource in  
helping to reduce poor health conditions and foster good well-being generally among people. Mobile  
augmented reality in supermarkets is one of the proposed solutions to this very pressing problem of  
enriching the quality of nutrition in food choices while shopping at the point-of-sale. One of the more  
interesting emerging technologies AR exemplifies, in very simple words, simply offers rich visual interaction  
with the real world by overlaying or augmenting the elements the camera view contains with useful  
information with relevance to the objects appearing in the video screen of the camera. With an AR-based  
smartphone application, the user now experiences a direct interactive or context-rich experience. Actually, it  
is just recently that AR gained much mindshare as an exciting new technology for the mobile smartphone.[1]  
Some examples of such applications are an augmented reality range finder for golf lovers, Cape GPS  
Rangefinder; AR application for color-blind people; Google Sky Map, that is an AR application for amateur  
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astronomers; Word Lens, that translates a foreign language captured by the mobile camera and overlays  
the result on top of the text; and many more. As the user continues walking down an aisle to get an item, its  
AR tag grows in size. When the tags of the thing are clicked, it provides nutrition information about that  
product. Tags are colored. Therefore, for example, green would be nutritionally preferable items-low calorie  
and gluten-free. Red would be used to mark bad products to avoid. For example, those that have a high  
cholesterol level or peanut contents. Additionally, the consumers can upload health profiles that might have  
an influence on their purchasing of food products such as weight watch, heart condition, and food allergies,  
etc. We observe that the product to be recommended will differ because the user has provided an input  
health condition/cue. To our knowledge system, we strongly believe that we are the first ones that introduce  
AR tagging with pedometric-based localization along with back-end health-based grocery recommendation  
at point of purchase.  
Point-of-purchase nutrition information probably would have greater impacts on dietary quality because it  
better primes consumers for decisions about healthy foods than the traditional generic messages of "eat  
better.".  
We installed our system in an actual grocery aisle of a real store to see how easy and quick subjects  
reported finding healthy food products and avoiding unhealthy ones using our application with AR tagging.  
In addition, we have tested the functionality and performance of our application based on the data that we  
have accumulated from 104 participants of our online demonstration/survey.