EE 368 Project Proposal:
Clothing Recognition and Search for Smarter Shopping

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Project Description:
The goal of this project is to create an Android application that allows the user to submit a photo of an article of clothing that they are interested in, and that will then return a list of similar items, along with relevant information, that will aid the user in deciding exactly what they want and where they may purchase it.

We will initially assume the most optimal conditions: that the picture being taken is of just the article of clothing, laid out and against an almost solid background. Since the search must go through a large database of images that cannot realistically be stored on a mobile phone, we have decided to do all processing in MATLAB on a server. Based on features such as color, pattern, and shape, we will then find the most similar images to send back to the phone, with information about brand, price, location, etc.

If time allows, we will also approach the problem of detecting and recognizing articles of clothing in less-than-ideal pictures, where perhaps a person is wearing the article, or it is viewed at an angle, or has a noisy background. This could apply to both the picture being taken and the images in the database.

The following are our project tasks:

- Form a database of images of articles of clothing and their features for search
- Using MATLAB, implement a way to identify the article and extract features for each image
- Using MATLAB, implement a way to search the database and identify similar images/features
- Implement Android-server communication
- (If time allows) Using MATLAB, implement a way to identify the article in each image under abnormal conditions

References:
