Email Address: domocoma0608@gmail.com
Team Type: General
Team Members: Douglas J. Roe
Team Name: FitSizeRec Dynamic Recommendation Engine
Team Capability: Former Software Developer, Former IT developer and architect, Nano degree from Udacity on ML/TensorFlow, excited hobbyist with a great idea.
https://www.linkedin.com/in/douglasjroe
Submission Category: Miscellaneous
Team Region: North America

Problem Statement: When shopping online and in store, consumers need anonymized non-gender-based in-store clothing sizing/fit recommendations matched to the entire clothing, footwear and equipment lines carried by the service provider. The consumer can then be provided a cart/list of styles and products that fit the consumer's needs.   The outcome information would reside on an edge IoT device temporarily for print out along with the product recommendations in store or the IoT device would pair up with recommendation engines across various consumer product services companies with shopping/advertising capabilities combined into the device via API services.

Images:
Description: Create a consumer device with a touch screen enabled interface that consumers can leverage to accomplish the systems objectives:

Persona – Home Consumer: As a consumer, I want to scan a body to obtain objective measurements at home that are anonymized and receive recommendations from vendors on what products would fit and combine other attributes such as color and pattern into the recommendations.

Design Principle: Personal images temporarily in a location not shared by other services to be deleted once converted to anonymized factors for recommendations. The anonymized measurement factors can be saved by the consumer only when consumer accepts the acceptable use, Child online privacy act and privacy policies.

Objective 1: Scan body.
   a. Identify the person's body from quick snap shot/image.
   b. Identify the person's body from a thermal image.

Objective 2: Convert body scan to
   a. Compare the two scans to create a machine learning (model to be determined) prediction of measurements

for the individual allowing for the individual to wear clothing.

  b. Calculate the anonymized fitting profile for minimum attributes.

Objective 3 – Request permission to "shop" and store anonymized scan.

  a. User is prompted through the touch screen to acknowledge the creation of the body approximation and values stored on device.

  b. User names profile

  c. User indicates region for sizing charts

  d. User saves information.

  e. User clicks "Find recommendations"

    a. API calls enabled vendors for recommendations using anonymized sizing.

    b. Until API services are available, the device logic will use screen scrapers and match sizes to open source international sizing charts.

  f. Resulting recommendations are shown with additional filters to be applied such as color, pattern, etc.

  g. User selects desirable matches and is then routed to appropriate vendor.

Persona – In- Store Consumer:

  Design Principle: Personal images temporarily in a location not shared by other services to be deleted once converted to anonymized factors for recommendations. The anonymized measurement factors can be saved by the consumer only when consumer accepts the acceptable use, Child online privacy act and privacy policies.

  Objective 1: Scan body.

    c. Identify the person's body from quick snap shot/image.

    d. Identify the person's body from a thermal image.

  Objective 2: Convert body scan to

    c. Compare the two scans to create a machine learning (model to be determined) prediction of the best fit for the individual allowing for the individual to wear clothing.

Objective 3 – Request permission to "shop" and store anonymized scan.

      h. User is prompted through the touch screen to acknowledge the creation of the body approximation and values stored on device.

      i. User names profile

      j. User indicates region for sizing charts

      k. User saves information.

      l. User clicks "Find recommendations"

            a. API calls store vendor for recommendations using anonymized sizing.

            b. Until API store services are available, the device logic will match sizes to open source international sizing charts.

      m. Resulting recommendations are shown with additional filters to be applied such as color, pattern, etc.

      n. API requests store location identifiers for selected products

      o. User selects desirable matches.

      p. User is prompted to be texted or print location of the recommended products in a store map.

Other information:

The team is looking to find real-world examples for his understanding of consumer goods industry, software development, and solution design. The team intends to combine another tool, Monument (monument.ai) to allow for no-code machine learning models to be integrated into the technology stack to reduce overall time for A/B testing and quick deployments/evaluations of models and inputs.

The prototype tool will be created using a combination of the following tools:

1) Project Case design:
   a. V.0001 - Lego for quick case prototyping.
   b. V.01 - 3d modeling and printing for a v.01 case and screen design.
2) Hardware:
   a. Raspberry pi 3
   b. Open CV3 oak-d kit and services
3) Programming platforms:
   a. Python 3, VBS, monument mai files
4) OS:
   a. windows 10 for IoT devices.
5) Printer:
   a. Laser printer