

International Journal of Innovative Research in Science, Engineering and Technology

(An ISO 3297: 2007 Certified Organization)

Vol. 5, Issue 3, March 2016

Human Attributes Quantification from A 2D Image Using Hale CANVAS App

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ABSTRACT: HALE CANVAS is a Native iOS Mobile Application developed to run on iPhones compatible with all its predecessor and devices. The Engrossing idea of HALE CANVAS is that it measures the human attributes like height, weight, wrist, forearm, waist and hip from the single updated image provided by the user. The first section of HALE CANVAS is STATURE FINDER wherein the user needs to upload his recent photo from the gallery or capture it new and once user fixes his image using the control points, from that particular image his height is exactly calculated using this Stature Finder. The next interesting section of HALE CANVAS is the WEIGHT QUESTER which predicts the user's weight accurately. User has to upload his vertical and lateral view image to this Weight Quester section of HALE CANVAS. The next scrutiny of HALE CANVAS is the WEIGHT LOSS CALCULATORS so that user can track their current weight and their status in fitness. Instead of getting the input parameters (like height, weight etc) from the user, which is annoying and boring for user every time so HALE CANVAS provides an innovative impact of fetching the height and weight input from the image provided by the user. The weight checker calculator gives you an idea of how long it will take for the user to reach their weight loss goal. After the user uploads his image details like height, weight, age, gender, hip, waist, wrist, forearm were predicted from the given image of the user and the calculator estimates how many calories you need to stay at the same weight (total daily calorie needs). It then calculates six different calorie deficits and how long it will take you to lose those pounds. In calorie intake calculator user needs to specify their activity factor to know their daily calorie intake^[III,IV]. The next useful section of HALE CANVAS is the BABY CARE CALCULATORS which composed of an ideal baby weight calculator and a future baby height predictor calculator which keeps tracks of baby's health like a pediatrician. A Report Analysis view is maintained wherein the user's login and a graphical view of his/her fitness status is monitored and user can also add on their fitness status in this report analysis view. One of the great benefits of HALE CANVAS is that they never forget or lose track of time.

KEYWORDS: Human attributes, Stature, Reference picture, Weight Loss Calculators, Weight, Report, Control points.

I. INTRODUCTION

Being hale and healthy is necessary for leading a happy life. This mantra can be achieved only through being FIT. The whole world is trying to get into better shape, and we don't want to be left behind. We need have track of our human attributes to be sure of our fitness. The HALE CANVAS app helps to easily figure out your fitness only by using a 2D image. The fitness status of the user is calculated using human attributes. In Today's Digital World people are extremely practiced to gadgets and mobile devices so the idea of delivering a good product to the market began with iPhone application because iPhone users are drastically increasing in the market.

II.OBJECTIVE

The objective of the HALE CANVAS app to quantify the human attributes such as height and weight from 2D image using the control points which are placed over the image. The app also provides the fitness

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status of the user through various weight loss calculators. This app also let you set your own goals and maintain a pace that's right for you. This app keeps you motivated for becoming the version of yourself you want to be. Healthy development of a child also can be tracked using this app. The app facilitates your smart phone turn into your personal trainer.

III. CHALLENGES OF PREVIOUS WORK

- User have keep track of all his human attributes to use a fitness app or to know about his fitness.
- User cannot always sit with inch tapes and weighing machines to measure their fitness.
- All the human attributes have to be manually entered by user.
- Giving so much inputs is annoying.

IV. ENHANCEMENTS BY “HALE CANVAS”

- The app mainly focuses on making the app more user friendly.
- Calculating various human attributes from image.
- Easily track the progress.
- Get free workout ideas.
- Set workout goals.
- Getting only image as input.

V. TECHNICAL STACK

The HALE CANVAS app is developed exclusively for iphone users.

- Device : iPhone.
- Platform :ios.
- Environment and Tool :
Objective-C, Interface Builder.
- IDE : iPhone SDK 8.0,X-code 6.1.

VII. Process flow

Users of the system:

- App users
- Hospitality Management

App users:

- a. Enter his details.
- b. Upload photo.
- c. Calculates his stature and weight.
- d. Obtains his fitness status
- e. Save reports of BMI, BMR, calorie intake, Body Fat, Lean Body Mass and Waist to Hip Ratio values^[VI,VII]

Hospitality Management:

- a. Hospitality Management keeps track of the patient's fitness status.
- b.Diagnose patients.
- c.Connect reports of the patient's via wireless devices and Bluetooth.

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VI .STATURE QUANTIFICATION

The stature of a person^[1,11] in



Figure 1: Stature of a person with two control points

image is influenced by 3 factor:

- 1.Height of the phone from the ground while taking image.
- 2.Distance of the person from the phone.
- 3.Scaling factor.

VIII. SOFTWARE DESIGN

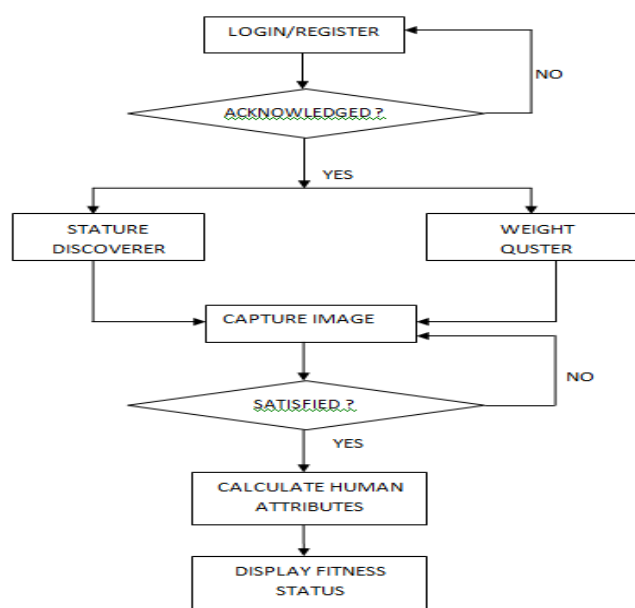


Figure 2: Software Design

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IX. HIGH LEVEL IMPLEMENTATION ARCHITECTURE

The User logs in into his account and he uploads his photo. The photo is processed such that the photo is compared with the available base picture with control points and control points are set on the user's picture. The control points are placed on image. The user can correct control points^{[1],[5]} The calculation are done based on the ratios and the height of the person is obtained and further calculations are done.

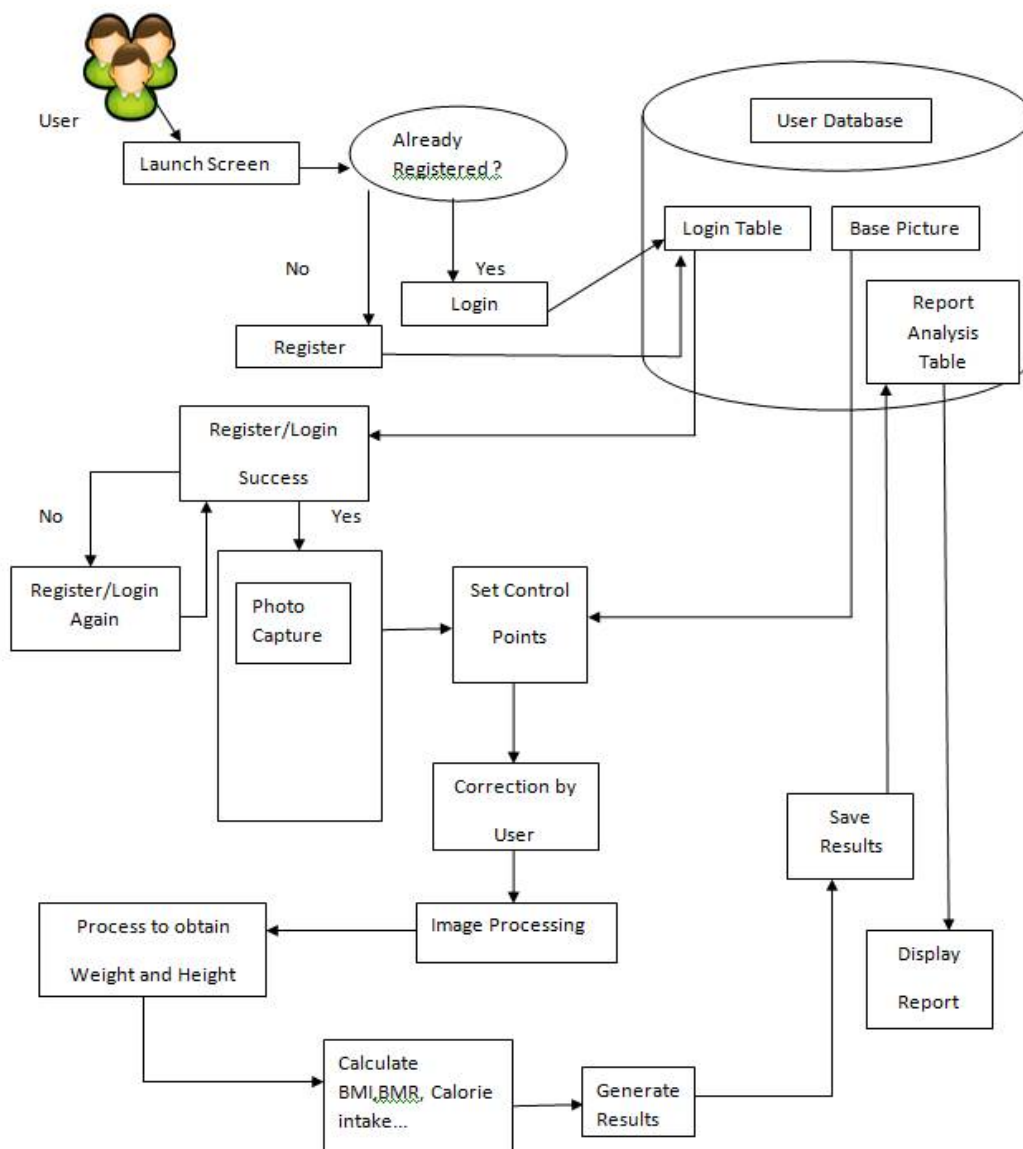


Figure 3: High Level System Architecture diagram

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X. CONCLUSION

HALE CANVAS APP keeps you in touch with a personal trainer or nutritionist. Unfortunately many people do not have proper fitness habits in place, and these habits can prove tough to start. HALE CANVAS excels at nudging users into healthy routines. For many who have not exercised in a very long time, regular reminders and instant feedback on small improvements can do wonders to drum up motivation. In addition it might even make you feel guilty about "just skipping a day".

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