**REAL-TIME CLOTHING CLASSIFICATION SYSTEM**



**USER MANUAL**

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**USER'S MANUAL**

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**1.0 GENERAL INFORMATION**

# GENERAL INFORMATION

## 1.1 System Overview

Digital image processing is the use of computer [algorithms](http://en.wikipedia.org/wiki/Algorithm) to perform [image processing](http://en.wikipedia.org/wiki/Image_processing) on [digital images](http://en.wikipedia.org/wiki/Digital_image). Image processing can offer both more sophisticated performance at simple tasks, and the implementation of methods which would be impossible by analog means.

The clothing classification system will be a very beneficial aid in a number of fields, as it processes images from video feed and classifies clothing. This system has applications in numerous domains such as security and safety, advertising, market and trend analysis, and gaming and entertainment; apart from its current use in online shopping.

This system has the potential to expand in many areas; it can be a part of a clothing recommendation system, or could be used to assist visually impaired people in choosing their clothes. Currently the existing system uses images to classify clothing, but our system will classify clothing in real-time, using various segmentation and classification techniques. In conjunction with upcoming domains, like Artificial Intelligence (AI) we see no limit on the scope of this project.

The software delivered in this iteration is fully functional in that it is capable of classifying the clothes the person in front of the installed camera is wearing. The system will be able to detect the colour of clothing, and the pattern of clothing (vertical stripes, horizontal stripes, checks, plain or abstract). Our algorithm will detect the body and classify patterns in real-time. This system can be placed in a mall in a clothing recommendation system, can be used in online shopping and other diverse fields. Our outcome will be displayed in the form of database entries and graphs or histograms.

## 1.2 Authorized Use Permission

Usage of this software is limited to its owner via the terms of its development. Spell Checker is wholly owned by TouchMagix Media Pvt. Ltd. , and may not be used or referenced without their express consent.

## 1.3 Points of Contact

### 1.3.1 Information

For additional information, Team Power to the Pixel can be contacted through email ([manalidesai24@gmail.com](mailto:manalidesai24@gmail.com) , [mtanveersingh@gmail.com](mailto:mtanveersingh@gmail.com) , [sharikakhurana3@gmail.com](mailto:sharikakhurana3@gmail.com) ).

**2.0 SYSTEM SUMMARY**

# SYSTEM SUMMARY

## 2.1 System Configuration

Initially, we fetch frames from the BGR video feed provided by the webcam. Various digital image processing algorithms are used on a single optimal frame. The algorithms are implemented using OpenCV library functions mainly aimed at real-time computer vision. Image is stored in matrix/matrices depending on the number of color channels. Respective image data such as pixel value, intensity, etc. can be fetched from these matrix/matrices for decision making by algorithms.

The system is coded in C++ to make it real-time and also because of the availability of resources for convenience. We have used existing face detection Haar algorithm fo detecting the face area in the feed. Hough line and canny algorithm is used for accurately detecting and segmenting different patterns. On successful classification the output will be stored in database under respective fields for future reference.

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## 2.2 Function Flows

The loading process begins the moment the application is started. The video feed is captured via the webcam and frames are captured continuously and the algorithm runs real time . After the frame is captured the face of the human is detected in the frame and depending on the size of the face a bounty factor is calculated. This factor is used to find the size of area of interest of the shirt and the pant and their location. The area of interest is located and then the colour detection algorithm and the pattern detection algorithm is applied in the area of interest The colour of the shirt and the pant are displayed on the screen. The type of pattern can be seen on the console.

The system identifies colours based on the maximum percentage of a particular colour in the area of interest.

## 2.3 User Access Levels

Developers and system maintainers using or modifying the system only require access to the configuration file to make simple replacements or tweaks to the running system’s functionality, or in the case of large involved modifications, a restart of the application.

## 2.4 Contingencies and Alternate Modes of Operation

There is a significant time cost in building and loading large or manifold dictionaries into the system upon startup, so in the case of an emergency or failure requiring a reboot, the system will need to spend a significant amount of time assembling its resources before it can readily resume its functioning. Once this loading phase of the application is complete, however, normal operations can resume.

There are no secondary modes of operation in this application. It is either not running, building its resources in preparation for search term processing, or actively waiting for