CLOTH TESTER using IMAGE Processing

Darshan Vyas[1] , Nikhil patil[2] , Devashashi Bhatkar[3] , Dr. V.M.Rohokale[4]

1,2,3- Project Members

4-Project Guide

Dept. Of Electronics And Telecommunication,

SKN Sinhgad Institute Of Technology And Science, Lonavala.

Savitribai Phule Pune University.

ABSTRACT

In textile industry it is necessary and essential to inspect the defect in cloth and for quality control in the cloth defect. This is important issue that leads to the difficulty for textile industry. Cloth inspection was is done humans eyes. The purpose of this report is to develop a prototype for Cloth Tester using image processing system to check the cloth is manufactured in proper manner. Researchers shows attention towards automatic inspection systems to detect the detection efficiency. Automatic inspection scheme using smart cameras. The main purpose of this paper is to identify the damaged cloth and color bleeding. Besides this, this study aimed to identify the image processing technique using MATLAB. We have taken the output and displayed on 16x2 LCD display

Introduction

In this modern era, the production rate of cloth has been highly increasing daily. During production occurrence of defects or damages in the cloth, thereby causing a loss in the quality and quantity of the product nearly 50-60% in the selling price of the cloth. Hence, there is a necessity to take a control over the quality of cloth before manufacturing to ensure the quality of the finished products and to increase the efficiency of the manufacturing process. Improved performance in the inspection of cloth leads to good quality products manufactured and thereby increasing the profitability and customer satisfaction.

At present, the textile cloth quality inspection process is mainly carried out manually whose reliability is limited by human errors. It is found that only about 65% of cloth defects could be detected, by the most highly trained person. Added to the limitation in the quality is the increased cost for man power and time taken for inspection. Therefore, an automated system for the inspection and evaluation of quality of the cloth is required. Plenty of approaches were already proposed to solve this problem of cloth defect detection.

Here we are going to take images through the web cam and give to pc. Then we are a software named MATLAB r2008 in which are going use digital image processing technique through we are e the error and then going transfer the data or output throu gh USB to UART to the ATMEGA 16 processor. We are going to display the output. Also we adding buzzer if faulty cloth appears the buzzer will go on.

I.RELATED WORK

The garment industry in the application of automation technology has made great progress in the efficiency of production processes. However, at the same time the efficiency of apparel and clothing inspection are not increased, mainly rely on manu al. This approach has many drawbacks. Modern mass production requirements to accelerate production of speed and the pace of defect identification. Hence to develop innovative, rapid, accurate clothing automatic defect detection system are urgent nee d. Computer vision to replace the artificial visual detection can not only improve the speed, lower labor costs, and can give full play to computer vision system stability, and can liberate workers from heavy boring labor. At the same time ,it would make the test of clothing apparel more accurate, consistent and effective, thereby improving product quality control and it will eventually lead to better promote consumer satisfaction. This paper researches the clothing detection - Sewing Defect Detection based on the above background. Using image processing technology conducted to detect defects of such defects for the apparel sewing garments of the common disconnection, heavy line jumper, sewing fold, and conducted exploration and research in Such automatic defect detection [1].

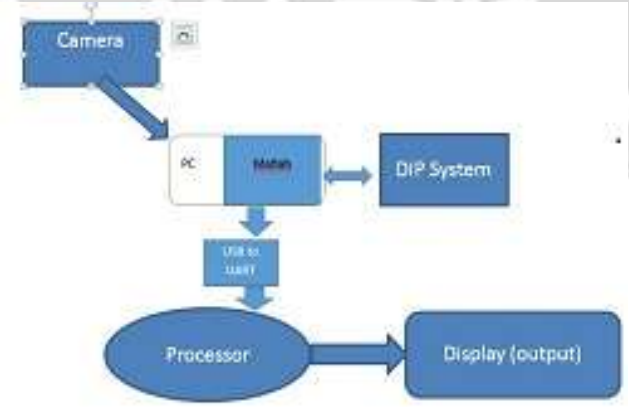
An innovative, low-cost, portable and high-precision yarn evaluation tester, for quality control of yarn characteristics under laboratory conditions. It presents a modular architecture, simultaneously integrating measurements of yarn hairiness, mass, regularity and diameter. An external module to obtain the yarn production characteristics using analogue optics and image processing is also available. The quantification of yarn hairiness and diameter variation (with a sampling resolution length of 1 mm) is carried out using photodiodes; the diameter characterization, based on 0.5 mm width samples, employs a linear photodiode array; the measurements of mass variation, based on samples of 1 mm, uses a parallel plate capacitive sensor. In the YSQ measurement parameters based on optical sensors a coherent signal processing technique with Fourier analysis is used, to obtain linear output signal variations. A comparison between the results obtained using the YSQ tester and a commercial solution is also presented [2]

The authenticity or originality of sport jersey cloth fabric in market nowadays is difficult to distinguish. This is a critical issue that leads to the difficulty for customer to know whether they are purchase the original fabric or the fake one. The purpose of this paper is to develop a prototype for Fabric Authenticity System to judge the originality of jersey cloth fabric based on its pattern structure. Besides this, this study aimed to identify the image processing technique which is Fourier analysis to differentiate the authentic and artificial fabric. As a result, the originality of the fabric can be detected based on the fabric pattern structure itself by looking on its Fourier spectrum [3].

The digital processing of image is the basis and premise of image processing. The so-called analog images translate into digital images or a picture of all the information translate into the form - Digital Image process that the computer will be able to handle. Digital images is divided into an image into a small regional pixels, and each pixel brightness or gray denote with an integer value. The digital image includes two processes which is sampling and quantization process[3].

To quantify yarn quality several companies have developed testers. Among the relevant contributions in the yarn quality control offered by these testers, several drawbacks can be pointed out, namely, their high cost, large volume, high weight, unable to be used online during production and limited resolution and precision in the yarn mass parameters determination. With the actual state of computers evolution, it is believed that an Image Processing (IP) based technological solution, characterized by a high efficiency and feasibility, suppress all the identified drawbacks of traditional solutions and establish new standards of yarn parameterization . IP based applications have been used in the textile field since 1964 , although they have not yet been converted to viable quality control methods. Due to its influence on the quality of textiles, yarn hairiness is considered to be one of the most significant parameters [4].

Block Diagram



II.SYSTEM PARAMETERS

1. CAMERA

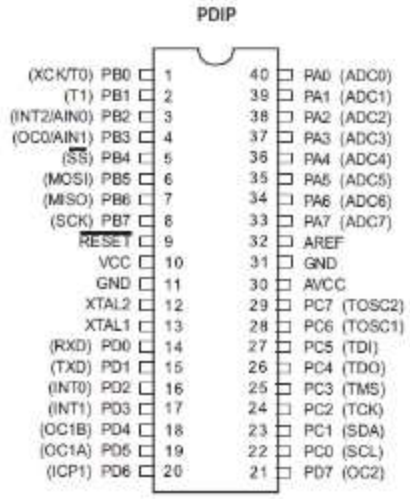
A webcam is a video camera that feeds or streams its image in real time to or through a computer to computer network. When "captured" by the computer, the video stream may be saved, viewed or sent on to other networks via systems such as the internet, and email as an attachment. When sent to a remote location, the video stream may be saved, viewed or on sent there. Unlike an IP camera (which connects using Ethernet or Wi-Fi), a webcam is generally connected by a USB cable, or similar cable, or built into computer hardware, such as laptops. The term "webcam" (a clipped compound) may also be used in its original sense of a video camera connected to the Web continuously for an indefinite time, rather than for a particular session, generally supplying a view for anyone who visits its web page over the Internet. Some of them, for example, those used as online traffic cameras, are expensive, rugged professional video cameras.

2. MATLAB

MATLAB (matrix laboratory) is a multi-paradigm numerical computing environment and fourth-generation programming language. A proprietary programming language developed by Math Works, MATLAB allows matrix manipulations, plotting of functions and data, implementation of algorithms, creation of user interfaces, and interfacing with programs written in other languages, including C, C++, Java, Fortran and Python. Although MATLAB is intended primarily for numerical computing, an optional toolbox uses the Mu PAD symbolic engine, allowing access to symbolic computing abilities. An additional package, Simulink, adds graphical multi-domain simulation and model-based design for dynamic and embedded systems. In 2004, MATLAB had around one million users across industry and academia. MATLAB users come from various backgrounds of engineering, science, and economics.

3. ATMEGA16 Processor

• Advanced RISC Architecture. 131 Powerful Instructions – Most Single-clock Cycle Execution 32 x 8 General Purpose Working Registers .Fully Static Operation. Up to 16 MIPS Throughput at 16 MHz On-chip 2-cycle Multiplier. High Endurance Non-volatile Memory segments. 16 Kbytes of In-System Self-programmable Flash program memory. 512 Bytes EEPROM. 1 Kbyte Internal SRAM. Write/Erase Cycles: 10,000 Flash/100,000 EEPROM. Data retention: 20 years at 85°C/100 years at 25°C. Optional Boot Code Section with Independent Lock Bits. In-System Programming by On-chip Boot Program. True Read-While-Write Operation. Programming Lock for Software Security



4. USB to UART

Single-Chip USB to UART Data Transfer
- Integrated USB transceiver; no external resistors

Required Integrated clock; no external crystal required. Internal 1024-byte programmable ROM for vendor ID, product ID, serial number, power descriptor, release number, and product description strings. EEPROM (CP2102). EPROM (One-time programmable) (CP2109). On-chip power-on reset circuit .On-chip voltage regulator.3.3 V output (CP2102). 3.45 V output (CP2109).100% pin and software compatible with CP2101.USB Function Controller. USB Specification 2.0 compliant; full-speed (12 Mbps)

5. ADVANTAGES:

1. Automated defect detection
2. Human error are reduced
3. Maximum checking of cloth
4. Display the output

III. FUTURE EXTENSIONS

The WARF and WRAFT of cloth means longitudinal and altitudinal threads which forms a cloth. The count of WARF and WRAFT within specific area is called the count of the cloth. These count shows the smoothness of cloth .with the help of this warf and wraft we can be able to differentiate the cloth. These counting system can be added to these manufacture will get full use these device. The counting chart is displayed at table.

Types of Fabric	Yarn Count (Nm)	
	Warp	Weft
Bed sheets (Bleached)	27	27
Bunting Cloth (Dyed)	17	14
Pugre Cloth (Bleached or Dyed)	30	30
Honey Comb and Huck–a–Back Towels (Bleached)	a) 14 b) 14 c) 17 d) 24 e) 34	a) 14 b) 10 c) 17 d) 20 e) 34
Long Cloth (Bleached)	27	20
Dosuti (Bleached or Dyed)	a) 27 b) 20	a) 27 b) 17
Napkins and Table Cloth (Bleached)	a) 27 b) 27	a) 27 b) 20
Dungri Cloth (Bleached)	17	17
Dusters(Bleached)	17	14
Lining Cloth (Dyed)	20	17
Sheeting Cloth (Bleached)	20	20
Sponge Cloth (Grey)	200/2	14 or 7

IV. CONCLUSIONS

Hence we detected the defect in cloth by using cloth tester using image processing system. The traditional method of checking the defect in cloth was human eye, but using these prototype we lessen the human effort by using pc-based detection. We took image processed it calculated the output if faulty the LCD displayed and buzzer will go on and display message of fault else it will show the cloth is checked and quality product. These is all about Cloth tester using Image processing system.

V. ACKNOWLEDGEMENT

Words are inadequate to express our deep sense of gratitude to **Dr.VANDANA ROHOKALE,** our Guide, for her consistent guidance, inspiration and Sympathetic attitude throughout the project work, which we are sure, will go a long way in our life.

We own sincere thanks, more than what we can express, towards **Prof. R.M.Thadi** Head of Electronics & Telecommunication Department, SKNSITS, LONAVALA, as all the success is the result of her affectionate encouragement.

I wish to express my appreciation to **Prof. Rohan Musale** who helped me to overcome my dough's in doing this seminar.

We are heavily indebted to Principal **Dr. M. S. ROHOKALE,** for his constant inspiration assistance throughout the project.

We express our sincere thanks to all our staff and colleagues who have helped us directly or indirectly in completing this project

VI. REFERENCES

- [1] Kaicheng Yin1 Weidong Yu2 ,"Image Processing for the Use of Garment Production Detection System" in 2008, at Textile materials and technology laboratory, Donghua University, Shanghai 200051,P.R.China hyykc@mail.dhu.edu.cn
- [2]Vítor H. Carvalho, Michael S. Belsley, Rosa M. Vasconcelos, and Filomena O. Soares," Automatic Yarn Characterization System Design of a Prototype", NO. 8, AUGUST 2009 987 Automatic Yarn Characterization System Design of a Prototype
- [3]W. Md. Syahrir, Jasni M. Zain and Hai Tao ,"Fabric Authenticity Method using Fast Fourier Transformation Detection Norislina Ismail" in 2011, at Faculty of Computer Systems & Software Engineering, Universiti Malaysia Pahang, Kuantan, 26300, Malaysia jasni@ump.edu.my wmsyahrir@ump.edu.my
- [4]Vítor Carvalho1, Filomena Soares1, Rosa Vasconcelos2, Michael Belsley3and Nuno Gonçalves ,"YARN HAIRINESS DETERMINATION USING IMAGE PROCESSING TECHNIQUES" in 2012, at DEI, UM, Azurém, Guimarães, Portugal, e-mail: (vcarvalho,fsoares)@dei.uminho.pt,