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DESIGN AND IMPLEMENTATION OF VIRTUAL DRESSING

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Abstract: Online shopping has replaced traditional shopping nowadays. Today almost every online store offers cash on delivery, free shipping, discount prices. This paper gives user friendly visual interface which auto detect the human face and display the dresses. But it is difficult for ordinary users to make a wonderful fitting of dresses in online. In virtual dressing is online equivalent of the near ubiquitous in store changing room. It enables user try on clothes to check more number of size or styles. To achieve this we use HAAR Algorithm which takes the responsibility to detect the face thereby merging the dress. In existing system, images of the user are uploaded to the template models which have been already provided by the online websites and user checks whether the dress suits them or not. In proposed system we are trying this using Raspberry pi controller and PIR sensor by detecting the human body and projecting the dresses in the monitor which suits them. With the minimum requirements of a computer with a screen and a camera is used to try dressing in online shopping at home is efficient and time consuming.

Keywords: HAAR Algorithm, Raspberry pi controller, PIR sensor.

I. INTRODUCTION

Image processing is the processing of images using mathematical operations by using any form of signal processing for which the input is an image, a series of images , or a video, such as a photograph or video frame. The output of image processing may be either an image or a set of characteristics or parameters related to image[1]. Today mobile commerce and online sales are increasing at a rapid rate. The majority of the customers don't buy online dresses because they don't want to take any risk. This brings an additional financial burden to retailers. Therefore, the objective of this work is to develop a virtual application that can run in a system and has a camera.

This application can enhance the way customers shop online and help them to chooses the correct type of dresses. In existing system programs are performed in Mat lab. Images are uploaded to check dress suits us or not. By displaying personalized fit score below each apparel while you shop online. In proposed system programs are performed in OPEN CV. Passive infrared sensors used for motion detection .The Raspberry pi is used for interface and to display real time imagesl.

Embedded System : An embedded system is a computer system with a dedicated function within a larger mechanical or electrical system.General purpose couterparts are low power consumption,small size and low per unit cost. Modern embedded systems are often based on microcontrollers but ordinary microprocessors are also comman ,especially in more complex systems.

II. SYSTEM IMPLEMENTATION

A. Components:

- PIR sensor
- Image capturing
- Raspberry pi controller
- Camera

B. Component Description

Pir sensor: Passive infrared sensors are electronic devices which are used to detect motion of an infrared emitting source ,usually a human body.PIR's come in many configurations for a wide variety of applications. They also referred as pyroelectric sensor. The most common model have numerous Fresnel lenses. According to the relative angle changes of human body movement and based on the space time conversion model, PIR nodes completed the human targeted tracking and recognition[2].

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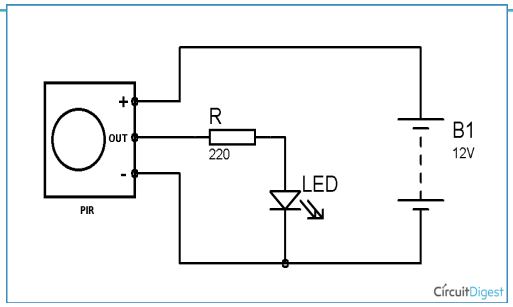

Figure 1: Circuit diagram for PIR sensor

In this application, if only camera sensors are used, they consume more power for sensing a large area: they require sophisticated image processing algorithm. PIR sensors provide a low cost, lowpower ,inexpensive,small and lightweight. A known problem of PIR sensors is that they are very sensitive to slight disturbances.

It is called passive because it receives infrared, not emits. Basically PIR sensor detects any change in heat and whenever it detects any change, its output PIN becomes HIGH. According to the advantages of PIR network system, this paper uses weighted least square to fuse the data which is collected by multiple heterogeneous sensor nodes to realize human target real-time tracking.

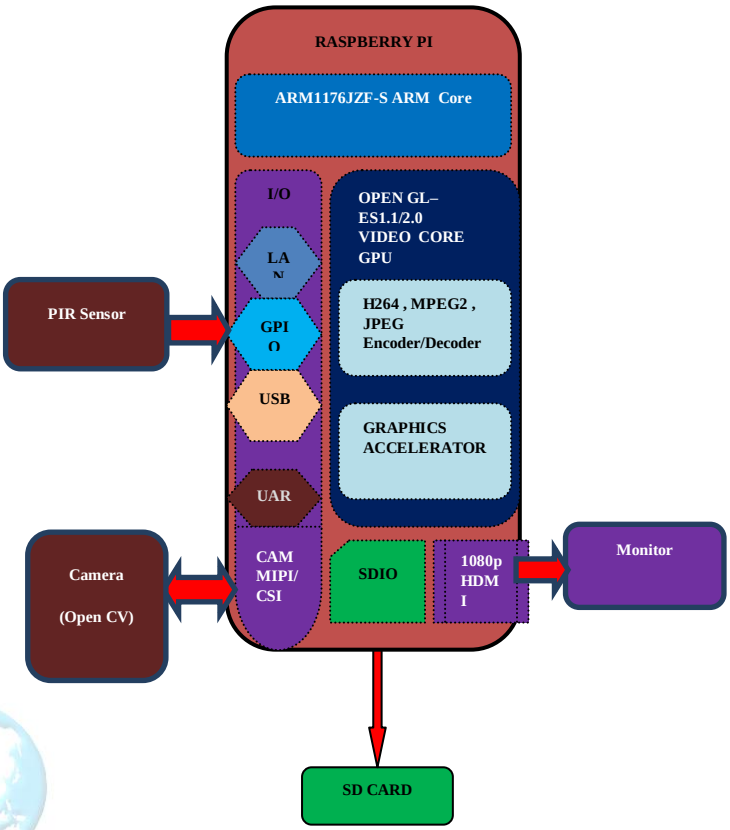

Figure 2: Block diagram[2]

Rasberry PI: Raspberry pi is a credit card sized development board used to recognize a human image and project a dress in the monitor which suits them based on skin color height and size[3].All embedded face recognition system based on the Raspberry Pi single –board computer is proposed in this paper.It is a capable little device that enables people of all ages to explore computing and to learn how to program in languages like scratch and python.

What's more,the raspberry pi has the ability to interact with the outside world and has been used in a wide array of digital maker projects.

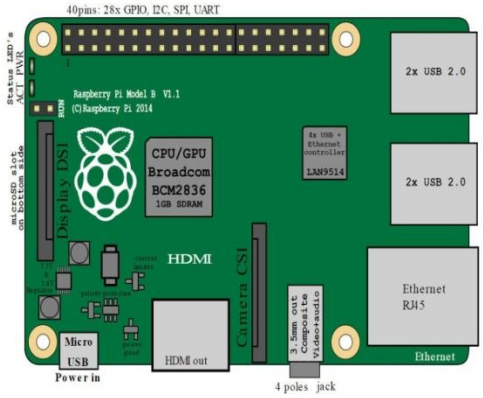

Figure 3: Raspberry controller[3]

It's capable of doing everything you'd expect a desktop computer to do,from browsing the internet.Raspberry pi may be operated with any generic USB computer board and mouse[4].It may also used with USB storage,USB to MIDI converters and any other component with USB capabilities.

Other peripherals can be attached through the various pins and connectors on the surface of the Raspberry pi.

Raspberry Pi Technical features:
The Raspberry pi features:

- The broadcam BCM2835 ARM11700Mhz"System on chip"Processor.
- 512Mb SDRAM.
- The free,versatile and highly developer friendly Debian GNU /Linux Operating System.
- HDMI video output.
- RCA video output.
- 3.5mm Audio output jack

Image capturing: Digital images created by scanner or camera should always be captured at a size and colored depth large enough for planned use.Most robotic scanners will capture images automatically as a bit map file.equipment calibration is the term used to describe the processes by which the capturing device can be setup or adjusted for optimal operation for the capture of a set of images

III. HAAR ALGORITHM

The human face poses even more problems than other objects since the human face is a dynamic object that comes in many forms and colors.However ,facial detection and tracking provides many benefits .Facial recognition is not possible if the face is not possible if the face is not isolated from the background.Human Computer Interaction could greatly be improved by using emotion pose,gesture recognition .all of which require face and facial feature detection and tracking. Although many different algorithms exist to perform face detection .each has its own weakness and strengths. Some use flesh tones some use contours,and other are even more complex involving templates,neutral networks,or problem.[4] They are computationally expensive.An image is only a collection of color and light intensity values. Analyzing these pixels for face detection is time consuming and difficult to accomplish because of the wide variations of shape and pigmentation within a human face.

Advantages & Disadvantages:

Depth sensing cameras: A depth sensing cameras functionality is simply leaps and bounds more advanced then the average person's webcam and its not even close.

Powerful Hardware system: When we are looking at In-store 3D virtual fitting rooms, developers are able to control the hardware that's powering the experience. That means they can create significantly more powerful applications. Since they don't need to built software for the hardware the average user has at home.

Foot Traffic: These types of systems are pretty novel and initially people will be interested in playing around with them.

Reduced Time to Market: Since the members spans the timezones there could be different team working on the same project 24/7.

The only disadvantage of this virtual dressing is that the cost which is more expensive and sometimes people will be having lack of trust.

V.CONCLUSION

In previous works the human has to adjust himself such that he fits into the given image displayed on the screen.this makes uncomfortable for the user.In proposed system is more reliable than the previous existing system.in this human face is detected automatically so that the user may not fit in the given image.the face is detected automatically and then the given dress is merged. In future more accessories are like caps,carrings,and more things are to be added to make this system more useful in future.since there is an increase in online shopping this system could help for the better selection of the online product where the customer can visually feel how the given accessories suit him/her.These things are to be done in the future.In addition ,the incorporation of social media in VTR's allows shoppers to obtain quick advice and feedback.

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