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Controlling Input Device Based On Iris Movement Detection Using Artificial Neural Network

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ABSTRACT

Disability management is a critical task ,it makes a difficult task to the physically disabled people in managing the situations and in controlling the digital system.It can be made efficient by applying a digital signal processing system which takes the analog input from the disabled people by using dedicated hardware with software, and then the raw data is converted it into informative data in the form of digital signal. After converting digital signals, the input processing system classifies the signal and performs the specified tasks, which equates to the prerequisite of the disabled people. The cognitive based knowledge processing system which refers to the process of acquiring and understanding knowledge through thought and experience and senses.It is designed to get the feedback and improve the tone of the neural schema. In order to provide the high quality system the software based cognitive technology must have the capability to derive a dynamic position and needs to perform a necessary task which is referred to the decision adopted by the system. The digital processing system is carried out in four phases: Observing the iris movement, Identification of input operation, Based on the input operation the prediction of task to be performed, Executing the task and produce the output and gather the feedback from the user to carry out the action ot improve the cognitive power of the system. The performance shows that the Digital Processing System would help the disabled people with high efficiency and helps them in controlling the system by the blink detection and the movement of iris.

Keywords : Digital Processing System, Cognitive Technology, World-Wide Web, Pixelationorpixellation, PSF, EICSRS,CCD

I. INTRODUCTION

Computer Vision Technology is described as the method of automating and integrating a wide range of processes and representations for vision perception. It performs typical tasks like image identification, restoration, storage, detection, quality analysis, reconstruction, feature extraction, decision making. Computer vision is a field that includes methods for acquiring, processing, analyzing, and understanding images and high-dimensional data from the real world in order to produce numerical or symbolic information in the forms of decisions. A theme in the development of this field has been to duplicate the abilities of human vision by electronically perceiving and understanding an image. This image understanding can be seen as the disentangling of symbolic information from image data using models constructed with the aid of geometry, physics, statistics, and learning theory.

Interest in the potential of digital images has increased enormously over the last few years, fueled at least in part by the rapid growth of imaging on the World-Wide Web. Users in many professional fields are exploiting the opportunities offered by the ability to access and manipulate remotely-stored images in all kinds of new and exciting ways. Image Indexing is an application for processing document images which is a part of a business workflow at where roles are assigned to perform specific functions. In a typical workflow,

document images progress from role to role based on information specified in data entry fields. In response to the data entry, Image Indexing updates the status of the image and, if specific criteria have been met, transitions the image from role to role. The problems of image retrieval are becoming widely recognized, and the search for solutions an increasingly active area for research and development.

In imaging science, image processing is 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 the image. Most image-processing techniques involve treating the image as a two-dimensional signal and applying standard signal-processing techniques to it. Images are also processed as three-dimensional signals where the third-dimension being time or the z-axis.
Image processing usually refers to digital image processing, but optical and analog image processing also are possible. This article is about general techniques that apply to all of them. The acquisition of images producing the input image in the first place is referred to as imaging.

Closely related to image processing are computer graphics and computer vision. In computer graphics, images are manually made from physical models of objects, environments, and lighting, instead of being acquired via imaging devices such as cameras from natural scenes, as in most animated movies. Computer vision, on the other hand, is often considered high-level image processing out of which a machine or computer or software intends to decipher the physical contents of an image or a sequence of images e.g., videos or 3D full-body magnetic resonance scans.

In modern sciences and technologies, images also gain much broader scopes due to the ever growing importance of scientific visualization of often large-scale complex scientific or experimental data. Examples include microarray data in genetic research, or real-time multi-asset portfolio trading in finance. Digital image processing is the use of computer algorithms to perform image processing on digital images. As a subcategory or field of digital signal processing, digital image processing has many advantages over analog image processing. It allows a much wider range of algorithms to be applied to the input data and can avoid problems such as the build-up of noise and signal distortion during processing. Since images are defined over two dimensions perhaps more digital image processing may be model in the form of multidimensional systems.

In computer graphics, pixelationorpixellation in British English is caused by displaying a bitmap or a section of a bitmap at such a large size that individual pixels, small single-colored square display elements that comprise the bitmap, are visible. Early graphical applications such as video games ran at very low resolutions with a small number of colors, and so had easily visible pixels. The resulting sharp edges gave curved objects and diagonal lines an unnatural appearance. However, when the number of available colors increased to 256, it was possible to gainfully employ antialiasing to smooth the appearance of low-resolution objects, not eliminating pixelation but making it less jarring to the eye. Higher resolutions would soon make this type of pixelation all but invisible on the screen, but pixelization is still visible if a low-resolution image is printed on paper.

In the realm of real-time 3D computer graphics, pixelation can be a problem. Here, bitmaps are applied to polygons as textures. As a camera approaches a textured polygon, simplistic nearest neighbor texture filtering would simply zoom in on the bitmap, creating drastic pixelation. The most common solution is a technique called pixel interpolation that smoothly blends or interpolates the color of one pixel into the color of the next adjacent pixel at high levels of zoom. This creates a more organic, but also much blurrier image. There are a number of ways of doing this; see texture filtering for details.

II. METHODS AND MATERIAL

COGNITIVE ANALYSIS

Eye tracking isthe process of measuring either the point of gaze where one is looking or the motion of the eye relative to the head. An eye tracker is a device for measuringeye positions and eye movement. Eye trackers are used in research on the visual system, in psychology, in marketing, as an input device for human computer interaction, and in product design. There are

a number of methods for measuring the eye movement. The most popular variant uses video images from which the eye positions are extracted. Eye movement are made using direct observations. It is observed that reading does not involve a smooth sweeping of the eyes along the text, as previously assumed, but a series of short stops called fixations. All the records show conclusively that the character of the eye movement is either completely independent of or only very slightly dependent on the material of the picture and how it is made. The cyclical pattern in the examination of the picture is dependent not only on what is shown on the picture, but also on the problem facing the observer and the information that ones hopes to get from the picture. Eye movement reflects the human thought process; so the observers thought may be followed to some extent from records of eye movement. It is easy to determine from these records from which the elements attract the observers eye in what order, and how often.

Image editing encompasses the processes of altering images, whether they are digital photographes, traditional photochemical photographs, or illustrations. Traditional analog image editing is known as photo retouching, using tools such as an airbrush to modify photographs, or editing illustrations with any traditional art medium. Graphic software programs, which can be broadly grouped into vector graphics editors, raster graphics editors, and 3D modelers, are the primary tools with which a user may manipulate, enhance, and transform images. Many image editing programs are also used to render or create computer art from scratch.

Camera or computer image editing programs often offer basic automatic image enhancement features that correct color hue and brightness imbalances as well as other image editing features, such as red eye removal, sharpness adjustments, zoom features and automatic cropping. These are called automatic because generally they happen without user interaction or are offered with one click of a button or mouse button or by selecting an option from a menu. Additionally, some automatic editing features offer a combination of editing actions with little or no user interaction. Many image file formats use data compression to reduce file size and save storage space. Digital compression of images may take place in the camera, or can be done in the computer with the image editor. When images are stored in JPEG format, compression has already taken place. Both cameras and computer programs allow the user to set the level of compression.

Some compression algorithms, such as those used in PNG file format, are lossless, which means no information is lost when the file is saved. By contrast, the JPEG file format uses a lossy compression algorithm by which the greater the compression, the more information is lost, ultimately reducing image quality or detail that cannot be restored. JPEG uses knowledge of the way the human brain and eyes perceive color to make this loss of detail less noticeable. Another feature common to many graphics applications is that of Layers, which are analogous to sheets of transparent acetate each containing separate elements that make up a combined picture, stacked on top of each other, each capable of being individually positioned, altered and blended with the layers below, without affecting any of the elements on the other layers.

Image Restoration is the operation of taking a corrupt/noisy image and estimating the clean, original image. Corruption may come in many forms such as motion blur, noise and camera mis-focus. Image restoration is performed by reversing the process that blurred the image and such is performed by imaging a point source and use the point source image, which is called the PSF to restore the image information lost to the blurring process. Image restoration is different from image enhancement in that the latter is designed to emphasize features of the image that make the image more pleasing to the observer, but not necessarily to produce realistic data from a scientific point of view.

With image enhancement noise can effectively be removed by sacrificing some resolution, but this is not acceptable in many applications. In a fluorescence microscope, resolution in the z-direction is bad as it is. More advanced image processing techniques must be applied to recover the object. The objective of image restoration techniques is to reduce noise and recover resolution loss. Image processing techniques are performed either in the image domain or the frequency domain. The most straightforward technique for image restoration is Deconvolution, which is performed in the frequency domain and after computing the Fourier Transform of both the image and the PSF and undo the resolution loss caused by the blurring factors. Deconvolution technique assumes absence of noise and

that the blurring process is shift-invariant and hence more sophisticated techniques have been developed to deal with the different types of noises and blurring functions.

Disability is the consequence of an impairment that may be physical, cognitive, mental, sensory, emotional, developmental, or some combination of these. A disability may be present from birth, or occur during a person's lifetime. Any impairment which limits the physical function of limbs, fine bones, or gross motor ability is a physical impairment, not necessarily a physical disability. The social model of disability defines physical disability as manifest when an impairment meets a non-universal design or program, e.g. a person who cannot climb stairs may have a physical impairment of the knees when putting stress on them from an elevated position such as with climbing or descending stairs. If an elevator were provided, or a building had services on the first floor, this impairment would not become a disability.

PREVIOUS WORK

REVIEW AND COMPARISON OF KERNEL BASED FUZZY IMAGE SEGMENTATION TECHNIQUE

PrabhjotKaur et al. (June 2012) presents a detailed study and comparison of some KFCM based image segmentation algorithms Four algorithms have been used Fuzzy Clustering, FCM algorithm, KFCM, KIFCM,KT2FCM.The four algorithms are studied and analyzed both quantitatively and qualitatively. These algorithms are implemented on synthetic images in case of without noise along with Gaussian and salt and pepper noise for better review and comparison. Based on outputs the KFCM is proved as the best algorithm.

EVENT DRIVEN CAMERA BASED EYE TRACKING

In an event driven scenario, the iris-tracking method is used to locate and track the subject's eye movement and gesture by comparing it to a set of classified normal and typical gestures. The database is based on available videos as well as a number of experiments conducted with normal subjects. Proposed approach Utilized feature based methods of face, such as skin color while detection of the eyes utilized a histogram-based approach and SVM was used as a two-class classifier to divide region into eyes and non- eyes patterns. Light reflections in the eye images negatively effect on iris border detection. Several image enhancement techniques have been used, such as contrast enhancement and histogram equalization, to enhance the input image before applying the detector. Due to the similarity of the optical behaviour of tested person according to moving target in video playback, the scheme realize the brain's ability to communicate with her/his environment and eyes. The center coordinate of left iris is assumed and another one is determined according to distance of two irises.

EYE TRACKING AND HEAD MOVEMENT DETECTION

Eye-gaze detection and tracking is considered a significant untraditional method of human computer interaction. Head movement detection has also received researchers' attention and interest as it has been found to be a simple and effective interaction method. Both technologies are considered the easiest alternative interface methods. They serve a wide range of severely disabled people who are left with minimal abilities. This work presents a state-of-art survey for eye tracking and head movement detection methods proposed in the literature. Examples of different fields of applications for both technologies, such as human computer interaction, driving assistance systems, and assistive technologies are also investigated. Eye tracking methods rarely investigate the required CPU time. However, real-time application requires investigating and optimizing the performance requirements. In addition, most studies do not test eye tracking using a known image database that contains variant images of different subjects in different conditions such as lighting conditions, noise, distances, etc. This makes the reported accuracy of a method less reliable because it may be affected by different test conditions.

EXISTING SYSTEM

The eye tracking ismostly based on computer vision based technique. In this method, a camera is set to focus on one or both eyes and record the eye movement. The main focus of this paper is on computer vision based eye detection. Based on the data obtained from the analysis, the eye movement can be used directly or detected over video frames in case of real-time eye tracking systems. There are many issues such as eye

openness, variability in eye size, direction of head, etc.., Several technique have been introduced.

The tracking system consist of a camera and a light source. The light source must be a continuous rays where the camera can capture the whole image with picture clarity. Let us assume the distance between the object and the light source is d1, the distance between the object and the camera lens is d2.The distance d1 should be greater than or equal to d2. Still camera should not be used. Instead of still camera, video camera is used for better clarity. When the camera is detecting, the light source must not change. The minimum capacity of a camera is,it can have 23 frames per second but to obtain a better pictureclarity, high quality camera must be used.The camera used in this paper is minimum of 3 mega pixel and of colour lens. A CCD is a device for the movement of electrical charge, usually from the device to an area where the charge can be manipulated, for example conversion into a digital value. This is achieved by 'Shifting' the signals between stages within the device one at a time. This image sensor is implemented in several different architectures. The most common are full framed, frame transfer and interline. The characteristics of each of these architecture is their approach to problem of shuttering.

Among these three interline has more shutter speed. In this device only one pixel shift has to occur to transfer from image area to storage area: shutter times can be less than micro second and smear is essentially eliminated. Modern designs have addressed this deleterious characteristics by adding micro lenses on the surface of the device to direct light away from the opaque regions and on the active area. The camera must be stable and also the user is instructed to be stable. There are no changes made to the obtained image.

Since the face is created in a nearly random morphogenetic process during the gestation, it has little probability to find two people in the world whose face textures are identical. So face recognition is the most accurate method and has the lowest false recognition rate. The face recognition has more stability than other biometric identification methods because the face has much more features than other biometrics and it won't change in people's life. With the advantages of non invasiveness, uniqueness, stability and low false recognition rate, face recognition has been researched widely and has a broad usage, such as security, attendance, etc. Most of the recognition systems are based on PC. However, the portability of PC is limited by its weight,
Size and the high power consumption. Thus results in that the using of face recognition is confined in few fields, and it is inconvenient to use. The way to get rid of the limit of PC is using embedded system. The designed EICSRS platform acquires the images and stores them into the real time database , which in turn later used for comparing the faces of the users to provide access to them or to deny the access to a place or to operate a device. Recent technological advances are enabling a new generation of smart cameras that represent a quantum leap in sophistication. While today's digital cameras capture images, smart cameras capture high level descriptions of the scene and analyze what they see. Because they push the design space in so many dimensions, image capturing are a leading edge application for embedded system research.

NEURAL NETWORK

In information technology, a neural network is a system of programs and data structures that approximates the operation of the human brain. A neural network usually involves a large number of processors operating in parallel, each with its own small sphere of knowledge and access to data in its local memory. Typically, a neural network is initially "trained" or fed large amounts of data and rules about data relationships for example, "A grandfather is older than a person's father". A program can then tell the network how to behave in response to an external stimulus for example, to input from a computer user who is interacting with the network or can initiate activity on its own within the limits of its access to the external world.

In machine learning and cognitive science, ANN are a family of models inspired by biological neural networks the central nervous systems of animals, in particular the brainand are used to estimate or approximate functions that can depend on a large number of inputs and are generally unknown. Artificial neural networks are generally presented as systems of interconnected "neurons" which exchange messages between each other. The connections have numeric weights that can be tuned based on experience, making neural nets adaptive to inputs and capable of learning.

For example, a neural network for handwriting recognition is defined by a set of input neurons which may be activated by the pixels of an input image. After being weighted and transformed by a function determined by the network's designer, the activations of these neurons are then passed on to other neurons. This process is repeated until finally, an output neuron is activated. This determines which character was read.

Like other machine learning methods systems that learn from data neural networks have been used to solve a wide variety of tasks that are hard to solve using ordinary rule-based programming, including computer vision and speech recognition.

Examinations of humanscentral nervous systems inspired the concept of artificial neural networks. In an artificial neural network, simple artificial nodes, known as "neurons", "neurodes", "processing elements" or "units", are connected together to form a network which mimics a biological neural network. There is no single formal definition of what an artificial neural network is. However, a class of statistical models may commonly be called "neural" if it possesses the following characteristics:

- ✓ Contains sets of adaptive weights, i.e. numerical parameters that are tuned by a learning algorithm, and
- ✓ Capability of approximating non-linear functions of their inputs.

The adaptive weights can be thought of as connection strengths between neurons, which are activated during training and prediction. Neural networks are similar to biological neural networks in the performing of functions collectively and in parallel by the units, rather than there being a clear delineation of subtasks to which individual units are assigned. The term "neural network" usually refers to models employed in statistics, cognitive psychology and artificial intelligence. Neural network models which command the central nervous system and the rest of the brain are part of theoretical neuroscience and computational neuroscience.

In modern software implementations of artificial neural networks, the approach inspired by biology has been largely abandoned for a more practical approach based on statistics and signal processing. In some of these systems, neural networks or parts of neural networks like artificial neurons form components in larger systems that combine both adaptive and non-adaptive elements. While the more general approach of such systems is more suitable for real-world problem solving, it has little to do with the traditional, artificial intelligence connectionist models. What they do have in common, however, is the principle of non-linear, distributed, parallel and local processing and adaptation. Historically, the use of neural network models marked a directional shift in the late eighties from high-level symbolic artificial intelligence, characterized by expert systems with knowledge embodied in if-then rules, to low-level sub-symbolic machine learning, characterized by knowledge embodied in the parameters of a dynamical system.

The word network in the term 'artificial neural network' refers to the interconnections between the neurons in the different layers of each system. An example system has three layers. The first layer has input neurons which send data via synapses to the second layer of neurons, and then via more synapses to the third layer of output neurons. More complex systems will have more layers of neurons, some having increased layers of input neurons and output neurons. The synapses store parameters called "weights" that manipulate the data in the calculations.

A data processing system is a combination of machines ,people and processes, that for a set of inputs produce a defined set of outputs.JPEG is a picture format with compression standard. JPEG compression is lossy , which means that some information may be lost when the image is restored from the compressed data but one can adjust the amount of loss at compression time by trading image quality for a smaller size of the compressed image. MPEG is a video format with compression standards of digital movies.MPEG takes the advantage of that redundancy to achieve even better compression. A movie also has sound channels to play synchronously with the sequence of images.

The aspect of an output image describes the proportional relationship between its width andheight for an x:y aspect ratio, no matter how big or small the image is, if the width is divided into x units of equal length and the height is measured using the same length in y units.The user is instructed to be stable and there should not be any eye variations. They must not use coolers because the iris movement cannot be detected

due to darkness. There will not be any changes in the iris movement co-ordinates when the user wore spectacles but it must be a non-reflective object.

The "unsharp" of the name derives from the fact that the technique uses a blurred, or "unsharp", negative image to create a mask of the original image. The unsharped mask is then combined with the positive original image, creating an image that is less blurry than the original. The resulting image, although clearer, may be a less accurate representation of the image's subject. In the context of signal processing, an unsharp mask is generally a linear or nonlinear filter that amplifies the high-frequency components of a signal.

For the photographic process, a large-format glass plate negative is contact-copied onto a low contrast film or plate to create a positive image. However, the positive copy is made with the copy material in contact with the back of the original, rather than emulsion-to-emulsion, so it is blurred. After processing this blurred positive is replaced in contact with the back of the original negative. When light is passed through both negative and in-register positive in an enlarger for example, the positive partially cancels some of the information in the negative.

The existing system is developed a software architecture to translate movements into switch events. The architecture comprises low pass and derivative filters, an unsupervised classifier that adapts continuously to the strength of the user's movements and a finite state machine which sets up a timer to prevent in-voluntary movements from triggering false positives.

III. RESULTS AND DISCUSSION

PROPOSED SYSTEM

The proposed algorithm is initialized on detecting a face from the USB camera feed, under satisfactory illumination. When the position of the user is sufficiently constant, the system for detecting and analyzing blinks and mouse movements is initialized automatically, depending on the involuntary blink of the user. A local template of the open eye is used for the subsequent tracking of the eye. On performing the training procedure required for each session, scores based on variance projection as well as the relative positions of the iris are analyzed and interpreted to perform the various mouse functions accordingly.

This analysis is performed at each frame. It is assumed that a frontal face is initially detected and tracked using an appropriate procedure. Once the face is detected and stabilized, it is necessary to locate the eyes in order to track the iris and analyze blinks. An involuntary eye blink triggers the eye localization process To accomplish this, the deference image of the head region of consecutive frames is created and then thresholded with a suitable threshold value.Some room for head movement should be accounted for without resulting in errors in mouse cursor movement. It is necessary to distinguish head movements from iris movements. Thus tracking of the head to a small extent is necessary. The predefined pattern is commonly known to be as the default pattern. The default pattern technique is normally applied to all experimental purpose and this is to ensure that the absolute or the required data is obtained at the user end. Generally, the predefined pattern technique is carried out for comparative study, where before an execution of any task the data's, more precisely the current data are compared with the predefined pattern and are then subjected to implementation.

The way of obtaining the predefined pattern can vary from different manufactures. In this page processing technique the predefined pattern is obtained by making use of the angle calculation. To be more detailed, the user who has been sensed by the camera is asked to focus at four different points from the page provided. The points that are to be focused are namely, the center point, the top of the page, the bottom of the page, the left and right corner. The system is trained in such a way that , it can calculate the angle based on the obtained reference points ($\theta1$,$\theta2$,$\theta3$,$\theta4$,$\theta5$).

The range is varied from 1024*768 and 1344*780, which are normally considered as the horizontal and vertical axis. The angle that is made use of, in this technique is the inverse tangent. The inverse tangent is taken to be as the reference parameter and is calculated as the angle we make use of relies on degree calculation . Hence all the radian values are converted to degree before they are taken for the predefined pattern recognition. The angle that is calculated for the purpose of predefined pattern recognition varies from

user to user. And this is because of the varying physical characteristics of every user.

Depending upon the area over which the users place their line of sight, the predefined pattern calculation is varied. Once the pattern is recorded for one single user, it remains the same throughout the page. And every time the user reads a line the current angle is compared with the predefined angle and then the line is read. The angles that are calculated are placed as an array matrix in the memory that are then used for comparative study. The lines in the page can be read with or without the use of the mouse pointer. The case in which there is a demand for the cursor is that when a random pattern is recorded. In this case the user is advised to make use of the mouse pointer. The same may be applied for closing a tab. In all other cases the use of mouse pointer is not a demand.

Iris movement detection with cognitive ability.

The user input is captured by camera. The input image undergoes image enhancement technique to extract the iris movement. The enhancement technique such as sharpening and segmentation. Sharpening is done to neglect the background of the image this in turn gives the accurate pixel value of iris. Second technique is segmentation this is done for grouping similar pixels this in turn helps to split the iris from the input image.

Then the image is given to the motion sensor. Motion sensor is used to detect the movement of iris. It will detect only pixel point and its coordinate. Using this coordinates the movement of iris is calculated.

The pixel coordinates are generally in (x,y)form. By considering the previous and current y point position, whether the user is reading current or next or previous line can be determined. Ifthe user is reading the same line then by comparing the current and previous x point position, whether the user is reading from right to left or from left to right can be determined. In general, human cannot view a line with exact straight line. Hence, we considering the absolute difference between the y points.

The absolute difference is less than difference coordinate than the user is reading the same line. If the absolute difference is greater than difference coordinate then scroll operation has to be performed.

The obtained pattern has to be matched with pre defined pattern. Then the required action has to be performed. Then the task has to be executed. The output is obtained. After that the feedback has to be collected from the user. if the feedback is positive, the process is continued. If it is negative, the entire system has to be remodelled. If it is neutral, additional features has to be added to the system.

CCD sensor orWeb Camera is used capture the live feed from the user.

Face and eye detection algorithm is used to identify and recognize the user input

1. Camera is activated to capture the live feed provided from the user.
2. From the captured input, ROI is identified by checking face pattern.
3. Captured input is stores as image and the pixel point values are normalized to recognize the face input and eye input.
4. By using edge detection and shape detection, the eye pattern is recognized and the input is filtered from the image

Gaussian and wiener filter is used to apply the thresholding by calculating the probabilistic distribution value for estimating the lower bound and upper bound to applying the noise removal process.

1. Each image is sperated in rgb color vector.
2. In each color vector, row and columns are processed separately.
3. For each row, from the list of pixel values, summation and average value is estimated.
4. From the computed average value, standard deviation and the variance value with the range of expected value is estimated.
5. From he estimated stddev and mean value, probability of distribution is computed to apply the filtering operation of the image pixel.
6. The upper bound and lower bound is estimated for the distribution of the pixel valued.
7. The boundaries are fixed as the threshold and the pixel piints ranges between the boundaries are filtered using the probability filters and the remaining pixel points are ignored
8. Pattern matching algorithm is used to compute the pattern related to the mouse movement

9. From the continuous images, the ROI is identified and filtered from the images.
10. The pixel points of the ROI is compared in each images.
11. The movement pattern is identified by checking the same pixel of the detected shapes.
12. From the movement of The pixel values, pattern of mouse movement is detected.
13. Mouse control is selected and the move operation is executed.

Supervised learning with back propagation is used to identify the input type and click operation on the particular action event.

IV.CONCLUSION

Disability management is a critical task since it is caused by employing a digital system to assist the physically disabled people. This process is completed by applying a digital signal processing system then the raw data is converted it into informative data in the form of digital signal. In order to provide the high quality system which is employed to help the disabled people there is a requirement to manage the dynamic situations. The processing system is carried out in four phases: Observing the iris movement, Identification of input operation, Based on the input operation the prediction of task to be performed, Executing the task and produce the output and gather the feedback from the user regarding the carrying into action, to improve the cognitive power of the system. The quality of the model has to be measured in metric related to the knowledge processing system, such as, improvement ratio of the cognitive system, number of dynamic situations handled and time required to dispatch the procedure.

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