SMART MIRROR

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Abstract   -   :
Everyone in this world is looking for comfort and solace . Nowadays, people have many inventions for similar purposes. People like to see good information on television or on the internet. Shining Mirror is an interactive program that helps addicts become accustomed to their daily situation. Imagine a scenario where you can grab the glass and see the goods, far beyond what you can do on your own. It shows the time and date every time you see it. It would be interesting if the mirror could detect drug addicts and remind them of important meetings of the day. Imagine a letter that the glass can display when it is sprayed out and ready to be framed. Sounds interesting, right? Thus, the intuitive mirror appeared. Smart Mirrors provide this experience, making it easier for addicts to step in and get information. Unlike fairy tales with beautiful glasses depicting the most beautiful women in the world, the glass system tries to alleviate the negative thoughts of family members with beautiful words and music therapy . Therefore, the mirror system generally ensures a good relationship between the viewer and the mirror.

I.   1.INTRODUCTION

The smart mirror is based on the Internet of Things (IoT) concept and has been specifically designed to allow users to monitor and control home appliances using voice recognition. In this case, the management of home appliances is considered as a major problem faced by people. There are so many things to do at once that sometimes users cannot multitask. For example, when a to-do list containing many household tasks is written on paper, it disappears because the paper is put into milk. Another example is that when users are too busy doing their daily tasks, they forget to do trivial but important things such as turning off the light in the room, which results in low energy loss. To solve this problem, smart glasses were created that provide users with the convenience of controlling products and the use of electronic devices in their homes through the network connection of lights and equipment. Users must give commands to the system, and the system's sensors recognize the user's voice to receive commands and respond to the user's needs.Smart

The mirror aims to expand the simple mirror with smart design, making it perfect for reading newspapers, buying new products, weather updates, etc. It aims to combine daily tasks such as and provide the user with all the information when it is ready. Smart glasses will help make our work more efficient and improve the smart home. With the development of technology, all kinds of information can be easily accessed, and the concept of smart glasses and smart home is becoming more widespread. for many devices connected wirelessly. These are responsible for changing and improving standards and quality of life. Many devices have been developed using the concepts of multimedia communication, artificial intelligence, Internet of Things (IoT) to change the way we do many daily tasks at home, in the office and even at work. They often use a mirror to look at themselves every day, a mental mirror to check how they look and dress each day as they prepare for work or college. Thus came the idea of having an interactive mirror that creates an impact.

Smart mirrors can display weather, time, date and traffic on the mirror. All these tasks can be done using Raspberry Pi and data from the internet. Raspberry Pi runs the Raspbian Jessie PIXEL operating system (OS). One of the smart glass creation techniques is to use an acrylic sheet over the LCD screen. A web browser and JavaScript or Python are used to display the user interface. There are many benefits to using smart glasses; It makes life easier; which includes mobile phone notifications, weather updates, etc. It means you don't need to check. This can be expanded by introducing sound sensors that detect the movement of objects, we can watch movies, news and all our home appliances can be controlled through smart glasses.

Thanks to interactive computers and technology used in our daily lives, lifestyle and quality of life have changed dramatically. Many devices and products based on this interactive technology have been introduced to the world. Thanks to artificial intelligence and interactive computers, we can offer personalized services that are easy, efficient and extremely safe. Whether at home or at work, all

users can work or enjoy multimedia content with great comfort. We look in the mirror many times a day to see how we are dressed, how our hair is, and we also dress a lot in front of the mirror. Reflecta is a forward-thinking system that integrates intelligence into the glass and provides better functionality based on the user's location, such as breaking news, news, news, weather and local time. Smart glasses are a stepping stone in the development of smart homes with intelligent design. It is also used in many workplaces. An electronic card called RASBERRY PI 3 card is used in the project.

In terms of usage, the concept level system has a camera to capture the viewer's image. The system can determine the viewer's behavior by analyzing his face. The mirror concept can react according to the viewer's mood after understanding the viewer's (social) emotions, and can control the viewer's mood when the viewer's emotions are not good enough. The proposed system also includes a notification mode so that viewers can check the calendar. Therefore, the mirror system generally ensures a good relationship between the viewer and the mirror. Our design philosophy is to create a smart home that improves the quality of life of family members and makes relationships with family members better. The remainder of this article is organized as follows.

This project was created in the context of the increase in connected devices we see every day. The Internet has changed our lives by making it easier for us to connect with information and other people in a virtual world. Then mobile phones evolved into smartphones, and since then the idea has exploded into the Internet of Things, connecting us to everyday things. The things that could be "smarter" are endless, and some are better at it than others. For example, glass provides large areas that are ideal for viewing and interacting with information. Most people have a mirror in their home, so the idea of a smart mirror is interesting and has been considered in many futuristic movies.

II.   Aim and Objectives

The objective wherein is to develop a mirror that does smart activities like

1. Showing weather, time , date and news etc.

2. To control the Home automation.

3. To check Facial emotion recognition.

4. Operate with the Google assistance.

5. Authentication of the face.

The captured image is compared and verified with the database, if found matching then the access to locking device is allowed.

In case of failure of face authentication an alerting SMS can be sent to the predefined mobile number through GSM module.

III.   LITERATURE REVIEW

Philips launched a product called Mirror TV in 2003. The product is essentially a two-way mirror placed in front of a modern TV, so when turned off the light looks like a burning light, and when turned on it works like a light. regular television. In 2005, Philips launched another research project called My-Heart. It is a mirror that displays important information about the patient. Unlike Mirror TV, My-Heart will place the image behind the mirror to display various information and medical analysis. This mirror is similar to the smart mirror we have today. There is an LCD screen (32 inches) behind the two-way mirror (37 inches). Various information such as time, weather and special widgets can be displayed on the screen. It can be broadcast on the internet whenever you want, or you can follow it on TV.

It has many accessories such as mobile applications, remote controls and on-screen keyboards. Our goal is not to sell this as a business, but to help anyone create it. They published all the files to create a smart mirror and published the code in a repository on Github for anyone to use. Users will now be able to create their own glasses according to their personal DIY projects. This product is called "mirror link". The company produces many smart devices that connect to the mirror and act as a hub to control everything in your home. Smart glasses are used in IoT-based applications in electronic health [1], healthcare [2], lifestyle [3], home smart [4][5], and two-way glass and graphics [6].

one. - Smart Interactive Mirror Display - Devi Singh and Varsha Singh, International Conference on Machine Learning, Big Data, Cloud and Communications (Com-IT-Con), 2019, India, 14-16 February 2019
A package Six app speakers and one displayed on a 32-inch high-

resolution screen surrounded by a housing containing a webcam. These apps include weather, Twitter, news, to-do lists, calendars and music. The smart mirror app runs on a basic Windows 8.1 computer with multiple processors, solid-state memory, and wireless connectivity.

The app may interact with the use of Leap Motion controllers. This remote does not protect the smart glass from sliding, clicking and rotating. You can use voice control to play music, send a tweet, or add tasks to your to-do list. Finally, the mirror monitors its own temperature and humidity, so if the bathroom is dangerous for the computer, it can err on the side of caution and shut down the system. - Smart mirror design and development - Using Raspberry Pi - Jagdish A. Pateljayshri T. Sadgir Sonal D. Sangaleharshada A. Dokhale International Journal of Engineering Science Innovations (IJESI) ISSN (Online): 2319 → 6734, ISSN (Print): 2319 → 6726 www.ijesi.org Volume 7 Issue 4 Print. i April 2018, PP 40-43 Info-

Today's usage for our phones, laptops, desktops and more. Technology that affects the average person can now be used to make life easier and faster. This article is designed and produced as a "smart mirror" for family, business and platform use. The project will collect data on the actual machine, which will be exported from the machine and controlled by the Raspberry Pi board. This project uses the Raspberry Pi3 Model-

B version. This smart mirror is the latest version of Raspberry Pi. This mirror is made by Multimedia Future Smart Mirror. The mirror, which is used as a personal device with accessories such as Raspberry Pi, microphone, speaker, and mirrored LED screen, provides important information such as the weather in the city, news updates, and location

based name information. The mirror is used as a personal device, complete with accessories such as the Raspberry Pi microphone, speakers and LED devices, providing the most important information on the mirror, such as cloud city news, news updates and special places. News. The mirror can display the temperature as well as the date and time of the current weather condition. This mirroring feature will be implemented over the internet and using the Raspberry Pi card. - Artificial Intelligence Mirror Using Raspberry Pi - Abdullahil Kafi, M. Shaikh Ashikul Alam, Sayeed Bin Hossain International Journal of Computer Applications (0975 – 8887)

Volume 180 – Issue 16, February 2018 In this age of continuous technological advancement, people's lives have become easier. This document describes the design and construction of smart glasses that will make our daily lives easier and more efficient. A smart mirror is a simple mirror enhanced by technology.

The purpose of the smart mirror is to provide an easy way to present information such as news channels, weather and time, while also providing some smart capabilities such as interacting with time users. Smart Mirror CPU is a Raspberry Pi 3 computer and framework that collects data from the internet via Wi-

Fi connection. Thanks to facial recognition and voice recognition models, smart glasses can identify users.

4. M. M. Yusri et al., "Smart Mirror for Smart Life", 2017 6th International ICT Student Planning Conference (ICT-

ISPC), Skudai, 2017. Good circulation at home. The mirror enables interaction that allows users to access and control smart devices in their homes as well as access personal services. The key is to ensure users have easy access to essential services while minimizing disruption to user interactions. For example, facial recognition is used to identify the user's face in a mirror and provide a face changer to access the user's information such as calendar, email, messaging phone, social media and other services. Reflecta starts up on the Raspberry Pi 3 B-

board. B. Cvitkoska, N. Marina, D. C. Bogatinoska and Z. Mitreski, "Smart Mirror Electronic Health Assistant Algorithm Recommendation Analysis Algorithm Proposed Upright Posture Model", IEEE EUROCON 2017 - 17th International Conference on Smart Technologies, Ohrid, 2017, p. 17 pages. 507 -551

It is considered the mirror of the future and the mirror of wisdom. part of the connected world

IV.   PROBLEM STATEMENT

The world we live in today has become the most competitive place, whether it is sports, entertainment or business. To be the best, one must devote more time to achieving one's goals with a certain impact. However, the advent of information technology often appears to be a double-

edged sword in improving performance. Sometimes people can use existing knowledge to help them complete a task, but this can also cause serious problems. After all, people try to do their best, but getting distracted by keeping up with the daily news or making plans for future weather can hinder success. Spending time performing these different tasks each day can have a negative impact and affect performance. Aro

und one o'clock in the evening. This is a long time when things are important but the heart is not working. Using this time to complete one of the above tasks on your phone or computer would be very useful, but unfortunately this is difficult to do when preparing for the day. There is a need for products that allow people to do everything they need to do to get ready for the day, all in one place, and do it well. Get all the information that will affect how they plan their day. See weather, time and date, and news at a glance using the LCD screen and two-

way mirror. In addition, the user-

friendly interface, which can be accessed from any Wi-Fi-

enabled device, allows users to easily connect to the Wi-

Fi in their home instead of where they breathe and choose a location from there. Accept the weather. By placing this feature on the mirror, which most people already use in their morning routine, this information can be presented in conjunction with morning hygiene work.

V. CHALLENGES

Considering the current technological, clinical, and ethical aspects, many limitations and challenges need to be overcome to realize the many benefits of AI-

enabled sharp glass on the scale. Current technology is not advanced enough to recognize the best care methods. On the other hand, dermatology and motion detection studies can be done very well using simple cameras and computer vision techniques. On the other hand, better tools are still needed to characterize eyes based on ophthalmic patterns or detect biomarkers such as systolic blood pressure through deep learning. There are solutions that use mobile phones and handheld ophthalmoscopes to capture images of bones. The challenge is to create a mirror camera that can take images of the retina without the help of additional lenses. Photography technology in this area is advancing rapidly and such cameras are likely to be available within the next few years. Performing numerous computer vision tasks without significant lag requires a more powerful motherboard than the mainstream motherboard. Advances in neural systems optimized to run deep learning, combined with continued improvements in GPUs, will play a major role in realizing a smart glass architecture for AI.

The rapid advancement in software development has led to the emergence of many tools that need to be optimize

d to ensure reliable measurements and results are translated into agreement. Most importantly, the reliability and accuracy of measurements provided by computer vision and machine learning models must be demonstrated through large-

scale observations and experimental studies. Many of the promising properties reported in the literature require further evaluation. Images stored outside the laboratory (i.e., "in the wild") may be affected by environmental factors such as different lighting conditions and/or misuse of space. Model modification and sensitivity analysis in the context of real-

world data have not yet been investigated. If the wrong parameters are included in the medical decision, a dangerous situation can arise with negative consequences of the wrong conditions and negative consequences due to excessive stress and/or unnecessary stress. Rehabilitation or new injuries. Therefore, it is important to establish the standards and regulations that smart glasses and algorithms must have.

VI. REQUIREMENT ANALYSIS

The Internet of Things (IoT) is a term used to describe "technologies, systems, and designs related to physical devices connected to the Internet." It refers to a network with a similar Internet structure, identifiable features (things) and their virtual representation, the ability to collect and share information, and the ability to provide remote control of existing network systems. Business Information; It has important features such as vulnerability, data processing, security, privacy, usage and service. According to the International Telecommunication Union (2013), the Internet of Things (IoT) is defined as a global communications standard that allows network services to connect physical data and connection language technology. The Internet of Things can also be viewed from a broad perspective but still has a huge impact on people. With the development of technology, all kinds of information can be easily accessed, and smart glasses and smart home ideas are becoming widespread. They are machines and digital devices with unique identifiers (UIDs) that can transmit data over a network without human-to-

human or human-to-

human interaction – no, no human (computer) required. Convergence of sensors and embedded systems. Traditional areas such as embedded systems, wireless sensor networks, control systems, and automation (including building and home automation) all contribute to IoT. In the co

nsumer market, IoT technology is associated with "smart home"-

related products, which include devices and equipment that support one or more modes (such as lighting quality, heating, home security, and home appliances such as cameras). It is like an ecosystem that can be controlled by ecosystem-

related devices (such as smartphones, smart speakers).

VII. COMPONENTS REQUIRED

IMPORTANT RASPBERRY PI 3 MODEL Jeer Pi 3 model is powered by 1.4 GHz 64-

bit Quad Core ARM Cortex-

A53 CPU Broadcom processor. This computer only has dual-

band 2.4 GHz and 5 GHz wireless LAN and Bluetooth 4.2 / BLE. Jeer Pi 3 models provide Fast Ethernet (Gigabit Ethernet over USB2.0) and Power over Ethernet (PoE) capabilities via separate PoE headers. This standalone PC also features improved Pre-

Boot Execution Environment (PXE) networking, USB mass booting, and better thermal performance. Network Camera A network camera sends or transmits its image in real time to or from a computer to a computer network. Unlike IP cameras (which use Ethernet or Wi-

Fi connections), network cameras are usually connected via a USB or similar cable or installed on a computer, such as a laptop. Information in the picture. The tester usually includes the display device, circuit, housing and power supply. The equipment used for today's observers is usually a thin-film transistor liquid crystal display (TFT-TV) with LED light that replaces the backlight of cold cathode fluorescent light (CCFL). Older monitors used cathode ray tubes (CRT). The monitor connects to the computer via VGA, Digital Video Interface (DVI), HDMI, DisplayPort, Thunderbolt, Low Voltage Discrimination Signaling (LVDS), or other proprietary connections and signals. Primarily, computer monitors are used for data processing and TV receivers are used for entertainment purposes. Since the 1980s, computers (and their monitors) have been used for information and entertainment purposes, and some computer control boxes have also been used. D. Two-Way Glass One-

way glass, also known as two-

way glass, is reflective on one side and transparent on the other. The transference feeling is complete when one side of the glass is bright and the other side is dark. This allows looking from the light side, but not the dark side. One-

way glass is often used as regular glass in a bright room where it is dark outside. People see themselves on the bright side, similar to an ordinary mirror. People living in darkness can see through it; It's like a transparent window. The light coming from the bright room passes through the glass more than the light sent from the dark room and is reflected back into the room. Due to the small amount of light transmitted from the dark room to the bright room, the light shines once, the light returns. darkness spreads as the light side falls into the light. This allows people in the dark to monitor the bright room. Microphone A microphone is a device that captures sound by converting it into electrical signals. The signal can be amplified to an analog signal or converted to a digital signal that can be reused by a computer or other digital audio equipment. Speaker A device that converts analog sound into raw air to produce sound. As CRT monitors became the norm, speakers designed for computers were prevented from having the appeal of the CRT's ringtone. It continues to fall. eight. Operating conditions mean downtime. The description of the fault should be clear. Also, don't confuse trust with emptiness, which is a different need. Be sure to share the consequences of software failure, how to prevent errors, error detection techniques, and repair techniques. Security One or more protections are the security of the system and its data. This dimension can be expressed as functional requirements that define the functionality of the system or its content. A function is defined as input, action and function. Work activities may include specific content, data management, and other specific tasks that define the work and system to be discussed. Behaviors that describe each scenario using the workflow are captured in use cases. Functional conditions are supported by non-

functional conditions (also known as positive conditions) that impose restrictions on the design or use (similar to operation, safety, or reliability). In general terms, performance is expressed as "the system must do", while failure situations are expressed as "the system must do". The plan for the implementation of operating conditions is specified in the system design.

VIII.   SYSTEM ANALYSIS AND DESIGN

OBJECTIVE MODEL
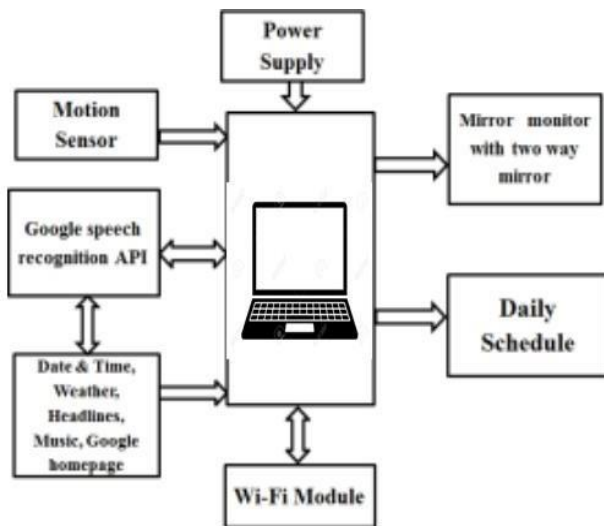
Analysis and design

The purpose of the design is rain, time, date, news, etc. is to create glasses with smart functions such as analysis and speech by making analysis. Allow access to closed system. System Architecture Skeleton is an abstract structure that defines the structure, purpose and various aspects of a system. An architectural description is a description and representation of the system designed to support the structure and functionality of the permission. The skeleton will follow principles that work together to use all methods. Different features used include Raspberry Pi 3, Video Recorder, Alexa (Audio), Inspector, Arduino Board, 8 Channel Relay, PIR Sensor, DTH11, Power Supply. Smart Mirror Application Smart Mirror Application Historically, a lot of research has been done in this field. This smart glass features Jeer Pi microcontroller, TV or LED display, and two-

way acrylic glass. Commands can be transmitted through a microphone that can be configured using the Jeer Pi microcontroller (5). Humidity and temperature can be measured using a DHT22 sensor. Some smart glasses have a web interface that uses different APIs to access it. Some smart glasses can also be used as home robots (1). Some models have two operating modes: traditional mode and smart mode.

In normal mode, smart glass behaves like ordinary glass, while in smart mode, all functions of the glass are active (2). Smart glasses will also display specific times on LED screens to help drug users manage their needs and store their products (7). There are many apps that are not available yet. Some smart glasses can also be used as home automation systems (1). Some models have two operating modes: traditional mode and smart mode.

In normal mode, smart glass behaves like ordinary glass, while in smart mode, all functions of the glass are active (2). Smart glasses also help drug users manage their needs and monitor products (7), information, etc. It will display specific times on LED screens to help them keep track.

Implementation:

At the heart of the Smart Mirror is the Raspberry Pi, which is a regular computer running Linux, but it also provides a set of GPIO (Convenience Data Input/Output) pins that allow you to control electronic equipment to access and browse the Internet. . Raspbian OS of Things (IoT) is one of the most licensed operating systems that is free to download and use. The framework is based on Debian Linux and is optimized to work well with Raspberry Pi computers. It works equally well for the majority of ARM users and engineers. LED monitor is a horizontal panel that uses many light-emitting diodes as pixels for video images. Their brightness allows them to be used outdoors [8]. Connect the display to the Raspberry Pi using the HDMI connection [5]. Information such as news, current weather, time and date can be displayed using the LED screen. Made from thermoplastic reflective materials, acrylic glass is lightweight and used to improve the appearance and comfort of lighting, signage, POPs and many other products. Acrylic reflector is ideal for food, retail and security applications. A microphone is a device that converts weak sound (sound energy) into an electrical signal. Provides specific information. The microphone connects to the Raspberry Pi enclosure via an external USM sound card, allowing the user to issue voice commands. This helps you perform many tasks such as setting alarms, notifications, and performing web searches[4]. Speakers are probably the most well-known accessories used in PC frames. Some speakers are designed for use with a PC, while others can be used as speakers. Sound is an energy converter that converts energy in the form of electric current into energy in the form of sound waves [9]. Touch control module is one of

the functions of the smart mirror. This is done by adding an infrared image. The infrared pole can be directly connected to the Raspberry Pi via the USB port. The advantage of this feature is that it is rarely needed. It is used to touch the object and determine the touch point in order to achieve the purpose of interaction [10]. After connecting the infrared frame, you only need to debug the work, which is low cost. Touch screens have advantages over capacitive resistors. Products that cannot be recognized by its ability and function can be recognized by the touch module of the infrared pole. Cameras are widely used in Internet of Things (IoT) projects as they can capture a lot of valuable information and often provide security. Raspberry Pi, camera, touch control, microphone, voice control, Raspbian operating system and Python programming are the best things to realize the smart mirror.

Things carried out with the help of Google

The main features of the design are:

(1) Time and date: View the time of the CPU (Raspberry Pi) used in the picture

(2) Calendar: International calendar on the mirror and future holidays are entered into the system. Get the calendar API from the open source website. AI will use voice based techniques to identify users through voice recognition. Acting or speaking takes more time than writing. Therefore the voice input will be converted into text by the speech software, here Google Voice is used to do this job. wit.ai, which has goals and relationships, is used for the artificial intelligence to understand the text. Then the AI needs to provide relevant information according to the user's request, called knowledge level. When the message is received, the AI   needs to create a complete sentence to express the message, so this is done at the language generation stage. The AI

has a complete sentence and this text needs to be converted into speech. So the cycle continues.

IX. Future Scope

It would be interesting to create an installer for this software, or even distribute it as a Linux distribution so that it can be easily installed on any Raspberry Pi. It would also be good to make some changes to make it truly multiplatform. A community should be built around operating systems and hardware so that people can help each other design and build these tools and create applications for

them. Once the process is complete, the software can be activated. Keeping this in mind, we can integrate theft detection into our smart glasses. Facial recognition can be used as evidence in a theft investigation. Mirror interfaces such as receiving traffic updates, emotional intelligence and log monitoring.

X.   V. CONCLUSION

This project stands out because it creates a new smart device that is rare and looks great. Developers can build applications using the platform's easy-to-use API. Google's speech recognition services. Thanks to smart glasses, you can get information and chat more easily and comfortably. Users can easily access relevant information. Our smart glasses make our daily lives easier and our access to information easier. Improve mirror security by integrating facial recognition technology. Mirror only allows authenticated users to access messages while other users are blocked. Smart glasses of the future will provide a variety of functions such as displaying the current time, date, temperature, humidity and the latest news while changing the user's face.

This research paper focuses on the creation of a smart mirror that provides space for interaction between users and the Internet. Users will find this useful for daily tasks. Many commercial and home applications can benefit from smart glass. With the help of IoT, smart home devices are becoming increasingly common. Smart glass facial recognition technology plays an important role in increasing security. Smart glasses can be connected to other devices and mobile phones in the home. The mirror can recognize faces and provide customized services. Emotional awareness can also be achieved through the use of mirrors. With the help of new technologies, smart glasses can be turned into touch devices. The development of technology can improve the quality of glass used in beauty salons, shops, restaurants and other production facilities.

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