

**SMART MIRROR SYSTEM USING IOT***Kanu Patel, Punit Patel**Assistant Professor, IT Department, BVM Engineering College, V.V.Nagar  
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**Abstract** — Smart appliance designed with multimedia intelligence to provide comfortable, convenient, and secure personal services in home becomes increasingly important in the era of information communication technology. This investigation describes a novel design and implementation of an interactive multimedia mirror system, called "smart mirror." The basic design of smart mirror is started with the glass that is to be used. Two-way glass is a recommended type as it lets the graphics on a display come through clearer. Our lifestyle has evolved in such a way that optimizing time is the most important thing. Based on a user studies and prototype implementation, we present the development of the innovating appliance that incorporates interactive services of information, ordered through a user interface on a surface of the mirror. Our work is based on the idea that we all look at the mirror when we go out, so why wouldn't a mirror become smart. With the advancing technologies, Smart Mirrors will take the place of regular mirrors in the future days, providing both mirror and computer aided information services to its users. With Raspberry Pi Zero microcontroller cards onboard, the systems can connect to the internet, take data from the internet and can show the information on places located on a mirror. In the scope of study, the developed intelligent mirror system includes a weather information, time and location information, current event information, user information taken from web services using Raspberry Pi 3 microcontroller card. The mirror will also have human detection module and shall light up when the user comes in front of mirror.

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**Keywords:** Smart Mirror, Interactive services, Raspberry Pi Zero, Web services.

**Paper Submitted: 12/01/2023, Paper Accepted: 30/03/2023 Paper published: 21/04/2023**

**I. INTRODUCTION**

Smart appliance designed In this world everybody wants a comfort life. modern man has invented different technology for his purpose. In today's world, people need to be connected and they are willing to access a data simply. whether it's through the tv or internet, people got to learn and in touch with the present affairs happening around the world. The Internet of Things suggests that interconnection via the internet of computing devices embedded in everyday objects, enabling them to send and receive the data. The internet of Things with its huge growth widens its applications to the living environment of the people by changing a home to good home. Smart home is a connected home that connects all style of digital devices to speak every other through the internet. Our life-style has evolved in such some way that optimizing time is that the most vital issue. Our work relies on the concept that we have a tendency to all verify the mirror once we exit, thus why would not the mirror become good. A common approach for building a sensible mirror is to use a prime quality unidirectional glass, a LCD monitor, a frame to carry the glass and monitor, and an online browser with python to provide the computer code options and drive the show. Smart mirrors arise from the transformation of a traditional mirror into AN interactive info show component with special interaction capabilities. The mirror surface is AN acceptable example of a natural interface as a result of it takes half in our everyday life. Therefore, visual feedback interaction is obtained non-intrusively through this object. during this sense, maintaining its initial practicality, the surface of the mirror is born-again into a natural interface used for the image of information. The utilization of technology has become another task on everyone's daily to try and do list. Technology ought to mould to our schedule, not the opposite approach around. that's wherever the good mirror plan originated. The good mirror plan aimed to integrate technology seamlessly into people's lives by swing it wherever everyone's routine eventually collides, the hotel. The goal of the good mirror is to extend a user's productivity by saving their time. The good mirror provides a close to effortless expertise that enables Sliding Window management based mostly High Utility Pattern Mining For Industrial Use. The user to simply walk up and be greeted with info. This good mirror aims to cut back and presumably eliminate the requirement for the user to make time in their daily morning or nightly routine to visualize their computer, tablet, or Smartphone for the data they have. The mirror can give the data with very little to no effort from the user with the goal of not being a burden that he or she should maintain. The mirror can do the thinking for the user. First, it'll flip on by users command with a phrase like "hello mirror" or the other phrase that user needs to feature. Then, it'll search information for the user with the assistance of web by browsing information like weather updates, temperature etc. the data would be given to the users in style of speech. No keyboards to undertake to stay dry and clean. The mirror provides common info most of the people check their good phones or tablets for, like weather, news, Twitter and schedules. this permits the

users to browse, think, and arrange their day whereas preparing within the morning or night. The mirror has to be fun yet. It'll give music playback which will be controlled by their voice thus there's no want for a mouse or keyboard. The mirror is additionally used for several handicapped people and conjointly it's simple to access for each individual. It is used in automobile industries and for health services to inform the prescriptions of the patients and conjointly way more applications is deployed mistreatment this good mirror with multimedia intelligence.

## II. LITERATURE REVIEW

**Paper Name:** Smart Mirror E-health Assistant – Posture Analyze.

**Author:** Biljana Cvetkoska<sup>1</sup>, Ninoslav Marina<sup>1</sup>, Dijana Capeska Bogatinoska<sup>1</sup>, Zhanko Mitreski<sup>1</sup>.

Today there exist many different types of smart assistants and devices, such as virtual assistants, smartphones and wearables, which have a purpose to coordinate and optimize the daily activities of the people worldwide. The smart assistants' focus is mainly on basic human needs, e.g. browsing, scheduling, navigating and other similar activities. However, not many smart assistants are concerned with the human health overall. In this paper, we focus on the possibility of using a smart mirror to detect health issues. A new Smart health Mirror model is proposed, that consists of a smart mirror which works on its own algorithm and behaves as smart assistant. This proposed model uses face recognition authentication, posture problem detection, and proper posture guidance, followed with suggestions for preventive healthcare. The algorithm identifies the person's posture and carefully analyses the posture and body changes over time. The obtained results from the analysis satisfied our expectations by improving the upright posture of the tested individual by considerable rate. The benefit of the proposed smart algorithm is proven by the evaluation results, which improved with each new individual analysis.

**Paper Name:** SmiWork: An Interactive Smart Mirror Platform for Workplace Health Promotion.

**Author:** Oihane Gomez-Carmona, Diego Casado-Mansilla DeustoTech, University of Deusto Avda Universidades.

This paper presents the design and implementation of a multi-user smart mirror system conceived to promote wellness and healthier lifestyles in the work environment through persuasive strategies. By means of a RFID reader, the interactive mirror recognises different users through their personal corporate ID card, which allows them to have access to their personalized user-interface. The smart mirror provides workplace's indoor environmental conditions (thermal, humidity and light), personal physical exercise data obtained from wearable devices and general purpose information (e.g. weather and daily news). Additionally, motivational advice related to physical performance is supplied through request by applying speech-based recognition techniques. End-users can also inquire the mirror about their ranking position in a fair-daily competition that gives social recognition to the most-active-user. The implemented mirror has been evaluated in a one-week study conducted in the wild in the workplace premises. The quantitative data gathered throughout the study, as well as the qualitative users' feedback obtained in a post-trial focus group, provided promising findings for the acceptance and convenience of such a persuasive device in the work environment. Furthermore, valuable design-insights were obtained for future iterations of the smart mirror that encourage.

**Paper Name:** Building a Smart Mirror.

**Author :** Josep Cumeras i Khan Grau en Multimèdia Tutor: Raymond Lagonigro Vic, juny

This project has been developed within the context of a time where every day we see more and more connected devices. The Internet transformed our lives by connecting us more easily to information and other people in the virtual world. Mobile phones then became smartphones and since then this concept has erupted and morphed into the Internet of Things, things which connect us to everyday objects. There are no end of objects that could be made "smarter", some being more suited to this than others. Mirrors, for example, provide a large surface ideal for displaying information and interacting with. Most people have mirrors at home so the concept of a smart mirror that you can interact with is attractive and has been fantasized in many futuristic movies.

**Project Name:** DESIGN AND DEVELOPMENT OF A SMART MIRROR USING RASPBERRY PI 1.

**Author:** VAIBHAV KHANNA, 2YASH VARDHAN, 3DHRUV NAIR, 4PREETI PANNU.

This paper presents the design and the development of an interactive multimedia futuristic Smart Mirror with artificial intelligence for the ambient home environment as well as for commercial uses in various industries. The project which would collect real world machine data and the data would be transmitted from the machine and would be managed by the Raspberry Pi. The Smart Mirror implemented as a personalized digital device equipped with peripherals such as Raspberry Pi, microphone, speakers, LED Monitor covered with a sheet of reflective one way mirror provides one of the most basic common amenities such as weather of the city, latest updates of news and headlines and local time corresponding to the location. Using speech processing techniques the Smart Mirror therefore interacts with the user through verbal commands, functions and listens to the user's question and responds them adequately.

**Project Name:** Smart Mirror: A Reflective Interface to Maximize Productivity.

**Author:** Piyush Maheshwari , Maninder Jeet Kaur, Sarthak Anand.

There is no end of objects that could be made “smarter,” some being more suited to this than others. Mirrors, for example, provide a large surface ideal for displaying information and interacting with. This paper depicts the design and development of a smart mirror that represents an elegant interface for glancing information for multiple people in a home environment. Face-recognition based authentication is used to detect the user. It provides a webpage based interface to access data feeds and other services. The data feeds use web service based communication to extract data packets available through various APIs offered by websites. All the computing required for this project is done by a Raspberry Pi 3 computer along with a webcam used for face detection and a LCD panel placed behind the mirror to display the interface.

**Project Name:** IMPLEMENTATION OF MAGIC MIRROR USING RASPBERRY PI 3.

**Author:** 1Suryansh Chandel, 2Ashay Mandwarya, 3S.Ushasukhanya.

This paper describes the designing and implementation of a voice controlled wall mirror, called “Magic Mirror”. It is a device that can function both as a mirror and an interactive display displaying multimedia content such as time, date, weather and news simultaneously. The user can interact with it using voice commands. The Magic Mirror consists of various functionalities like real time data and information updates, voice commands, face detection/recognition using LCD monitor, microphone and webcam. The user can interact with magic mirror using voice commands. Keywords: Magic Mirror, Raspberry pi 3, Rasbian.

## **II. EXISTING SYSTEM**

The projects similar to the smart mirror project covers a large spectrum of functionality and purposes. There were significantly more projects than actual products. Some blame can be put on a fact that the smart home is still an emerging market and limited by the cost of manufacturing keeping the products out of reach from the everyday consumer. The fact was that there were more projects shows the interest in developing more affordable and functional smart mirror. Although, the actual product developed by the company delivered on features, they were either still in development phase or already priced too high to be considered the viable competitor. Several efforts have been made pursuing the objective of adding special capabilities to mirrors, both commercial and research-based approaches. But such systems are Infeasible to implement such applications in a normally owing to large space requirement.

## **III. SURVEY OF PROPOSED SYSTEM**

The proposed smart mirror system aims to provide users with an interactive interface for simplified and personalized services in the comfort of the user's home. It is a smart and user friendly solution presented in the form of a mirror that also acts as a gateway to interactive services, particularly those of information oriented nature, such as multimedia and news feed among others. Hence, the proposed system allows users access to customizable services, all while they are performing other tasks (i.e. grooming). As such, it serves as a convenient time-saver.

### **ADVANTAGES OF PROPOSED SYSTEM:**

- The system act as an interactive mirror interface.
- Distinguish between all users and provide the corresponding customized services.
- Allow for custom user profile management where the user creates his/her own profile that is to be stored on the database server of the proposed system.
- The Magic Mirror dashboard shows the weather, calendar you choose, current time by using python tools.
- This product would be useful for busy individuals that want to multitask and stay informed while on the go.

## V. SYSTEM ARCHITECTURE

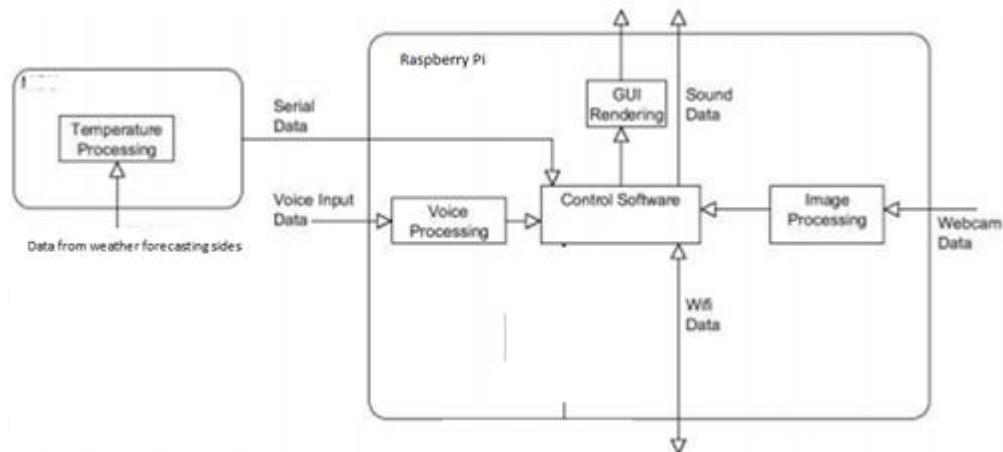


Fig.: System Architecture

## VI. CONCLUSION AND FUTURE WORK

Thus it is a smart and user friendly solution presented in the form of a mirror that also acts as a gateway to interactive services, particularly those of information oriented nature, such as multimedia and news feed among others. Multiple tasks can be displayed at a time simultaneously. So, it will be user Friendly. A futuristic smart mirror system that provides information like time, date, accurate temperature and humidity, and latest news while looking and grooming in front of mirror, also helps in thief detection.

### Future scope

This is mainly used for controlling energy usage, organizing daily human routines. One of the important application of the proposed smart mirror is to track health over time.

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