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# SMART MIRROR SYSTEM USING IOT

Varsharani Sable [1], Nanda kularni[2]

*Siddhant College of Engineering, Sudumbare, Maval Pune.*

**Abstract** — *This research discusses a innovative design and application of an immersive digital mirror scheme, known as smart mirror. "The simple form of smart mirror is begun for the glass to be used. Two-way glass can be a recommended type because it enables the graphics on a screen to come back into a smoother mirror. Our environment has developed in such a way that the management of time is attributed to the fact that the molecular mirror is the most appropriate.*

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

## I. INTRODUCTION

One wants a comfortable life during this world of smart appliances. To his reason modern man has created radically new technologies. Individuals have to be connected in today's world and they're only willing to access information. If it's by tv or network or not, people need to read and communicate with the latest worldwide affairs. The Internet of Things suggests interconnecting devices embedded in everyday objects via the web, sanctioning them for sending and receiving the info. With its vast advancement, the Stuff cloud broadens its applications to the individual's living environment by transforming a home to a smart house. Smart house is a wired home that links all sorts of digital devices across the network to speak about any option. Our lifestyle has evolved in such a way that the most important issue is to optimize time. Our work depends on the thought we all tend to check the mirror once we exit, so why wouldn't the mirror be smart. A standard approach to building a wise mirror is to use a high-quality unidirectional glass, an LCD monitor, a glass and monitor frame, and a python internet browser to provide the options for computer code and drive the show. Intelligent mirrors emerge from converting a regular mirror into an engaging feature displaying details with unique interaction capabilities. The mirror surface is an appropriate example of a natural interface, as it takes half of our way of life as a result. So visual feedback interaction is obtained through this object non-intrusively. Throughout this context, retaining its original functionality, the mirror surface is transformed into a natural interface used for information display. Using technology has become another regular job for the to do and to do list. Technology has to influence our timetable, not the other solution from which the great mirror set-up emerged. The big mirror structure aimed at effortlessly incorporating technology into the lives of people by moving it up where the rhythm of everything inevitably collides, the hotel. The great mirror's aim is to increase the productivity of a user by saving time. The great mirror offers a near to simple experience that enables high utility pattern mining for industrial use based on sliding window management. The user can walk up easily and be greeted with information. This smart mirror aims to cut back and presumably eliminate the need for the user to form time for the information they need in their daily morning or nightly routine to examine their laptop, tablet , or smartphone. The reflection should provide the customer with little or little attempt to present the information with the goal of not being a nuisance he or she will retain. The reflection will do consumer analysis. First, it will flip on by user command with a phrase like \hello mirror "or the opposite phrase that user needs to feature. Then, by browsing information such as weather updates, temperature etc., it will search the user's data with the help of the internet. The information would tend to users in speech style. No keyboards to undertake to stay dry and clean.

This allows users to browse, think and arrange their day while getting ready in the morning or night. The mirror has to be fun yet. It will offer music playback that can be controlled by their voice so there is no need for a mouse or keyboard. Additionally, the mirror is used for many people with disabilities and it is easy to access collectively for each individual.

**II. LITERATURE REVIEW Paper Name:** Smart Mirror E-health Assistant – PostureAnalyze.
**Author:** Biljana Cvetkoska1, Ninoslav Marina1, DijanaCapeska Bogatinoska1, ZhankoMitreski1.
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-MansillaDeustoTech, University of DeustoAvdaUniversidades.
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 thatencourage.

**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 futuristicmovies.

**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, ManinderJeet 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.

## II. EXISTINGSYSTEM

Almost like the smart mirror project, the projects cover an oversized spectrum of practicalities and functions. Considerably additional projects existed than the actual product. Any blame is put on the fact that the good house is still a growing market and limited by the expense of manufacturing that holds the commodity out of sight of the everyday customer. The fact was that additional projects have taken place shows the interest in developing more cost-effective and useful good mirror. While the actual product produced by the company delivered on products, they were either part of the

growth or just too high priced to be considered a competitive competitor. Many efforts are made with the aim of adding special mirror capabilities, each business approach and the research approach. However, due to large area requirements, such systems are not feasible to implement such applications in a very common way.

## III.SURVEY OF PROPOSEDSYSTEM

The proposed smart mirror system aims to provide users in the comfort of the user's home with an interactive interface for simplified and personalized services. It is an intelligent and user-friendly solution presented in the form of a mirror that also acts as a gateway to interactive services , especially those of information-oriented nature, such as multimedia and news feeds among others. The proposed program thus enables users to access personalized resources when performing certain (i.e. grooming) functions. As such, it acts as an simple time saver

## ADVANTAGES OF PROPOSED SYSTEM:

- The system act as an interactive mirrorinterface.
- Distinguish between all users and provide the corresponding customizedservices.
- 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 proposedsystem.
- The Magic Mirror dashboard shows the weather, calendar you choose, current time by using pythontools.
- This product would be useful for busy individuals that want to multitask and stay informed while on thego.

## V. SYSTEMARCHITECTURE

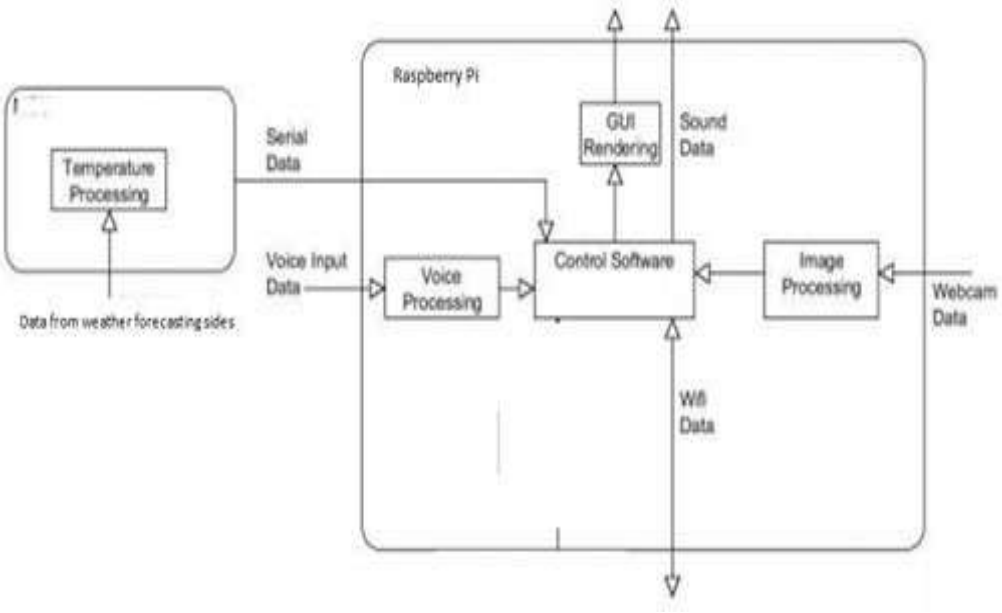


Fig.: System Architecture

## VI.RESULT


**Fig.1. Image Training Snap**

 

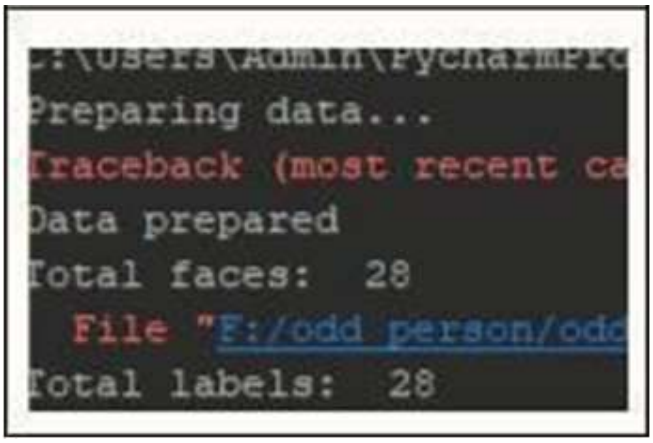


**Fig.Data Loaded Successfully**

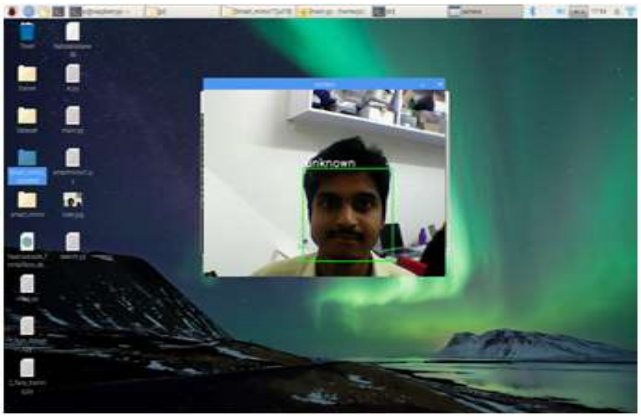


**Fig. Face Security**

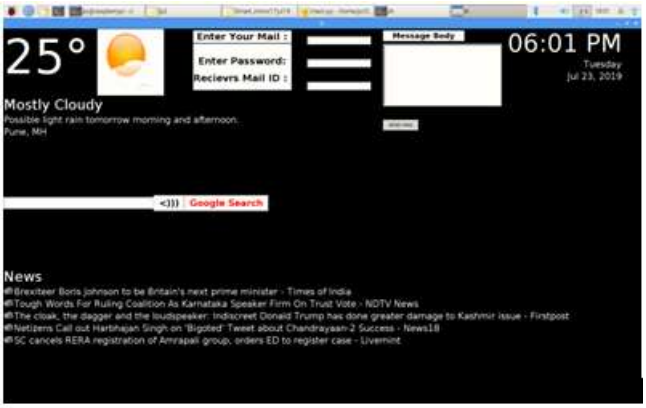


**Fig.Final Output**

## VII. CONCLUSION AND FUTURE WORK

Thus it is a clever and user-friendly solution offered inside a mirror category that additionally acts as an entrance to digital resources, especially those of information-oriented nature, such as multimedia device and news feed among others. Many roles can be concurrently shown at a time. So, it should be Fun for consumers. A futuristic sensitive mirror system with data such as time, date, correct temperature and humidity, and the latest news, while attempting and grooming in front of the mirror helps in detecting fraud.

**Future scope**

This is primarily used to control energy use and to organize daily human routines. One important application of the smart mirror proposed is to track health over time.

 

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