

# Computerized Interactive Adroit Mirror

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**Abstract:** *The concept of Computerized Interactive Mirror is that it is not like a normal mirror. It is very efficient and very interactive in a way that many things can be done at the same time. It is attractive and can be fantasized by anyone. Normally people have mirrors at their houses. This could be an efficient replacement to the normal mirror in use. In today's busy moving world people have no time to read news paper or switch on the TV right in the morning to check the news headlines or the weather forecast. The main aim of the project is it saves time and displays time, weather, news feed and the mail details in your mirror itself. Just imagine a smart mirror with all facilities which is interactive and time saving. The Computerized Interactive Mirror implemented as a personalised digital device equipped with peripherals such as Raspberry Pi, Camera, 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, local time corresponding to the location and even check your mail.*

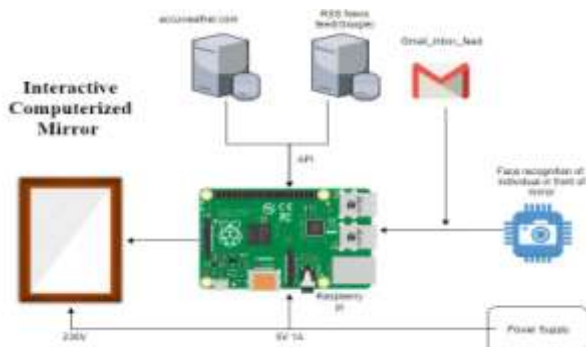
**Keywords—**Raspberry Pi, Camera, One Way Mirror, News, Time, Weather, Mail.

## I. INTRODUCTION

The Computerized Interactive mirror is an effort to make the mirror with proper embedded intelligence for offering enhanced features such as weather of the city, latest updates of news and headlines and local time corresponding to the location. We look at the mirror daily and interact with it psychologically to find out how we look and how our attire is. In this mirror the data would be transmitted from the machine and would be managed in a central database. 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.

## II. THEORY

The Computerized Interactive Adroit Mirror has brought a new twist to the decade old research and industry initiatives in realizing Smart Environments. The mirror created is capable of displaying the mail of the individuals standing in front of the mirror by face recognition and also may other features. This mirror has lots of advantages than any other mirrors and can be used with human interaction facility and inbuilt features. The application of this mirror in the home environment may provide quality, convenience, efficiency, security, and safety to its residents. Besides, the areas of home automation, communication and socialization, rest, refreshment, entertainment and sports, working, and learning at home will be influenced by the innovations of this mirror. Therefore, the design of smart artefacts for the ambient homes should not be only technology-driven; it should also consider other aspects of home environment with a view to providing comfort and convenience to people living in the environment.



Block Diagram

Our work is geared towards this direction and is focused on the design and development of a smart mirror interface for the ambient home environment. In this paper we make the following contribution. We proposed and developed a functional prototype of the smart mirror using off-the-shelf technologies that provide personalized data feeds such as weather, time, and reminder. We have also added certain features like face recognition and the recognized individual's mail inbox will be displayed on the mirror.

### III. RELATED WORK

The proposed Computerized Interactive Adroit mirror represents a natural interface that facilitates access to personalized services like news feeds, date, time, weather, opening the mail id making the user very convenient with the house environment.. There are many other related works done before and the related works has been discussed in detail.



Fig.1 Magic Mirror(Related Work)

The Magic Mirror is a work similar to that of the Computerized Interactive Adroit Mirror. But it has limited features only. In that mirror a one-way mirror is used in front of the LED monitor thereby working as a regular mirror. In addition to that the users will be able to obtain minute updates of latest news and public headlines, weather reports. The features of this mirror is very limited and compact. The recent work includes a mirror which provides an ambient environment to the inmates of the house by accessing to the facebook and also displaying the time, date and weather reports.

### IV. PROPOSED WORK

The Computerized Interactive Adroit Mirror is designed to perform several functionalities, it will mimic a natural mirror interface through a flat LED monitor used for the mirror display. A one-way mirror is used in front of the LED monitor thereby working as a regular mirror. In addition to that the users will be able to obtain minute updates of latest news and public headlines, weather reports as well as get reports of our interests.



Fig.2 One way Mirror Framework

### Methodology



Our work includes the design and development of a Mirror on Raspberry Pi for best home environment. Most people have mirrors at home, so the concept of this mirror that you can interact with is attractive and can be fantasized by anyone. At times no one has time to read the newspaper or switch on the TV right in the morning to check the news headlines or the weather forecast. If a mirror serves to this purpose, one can imagine the amount of time it will save and be of such a great use.

The device was to look like a regular mirror but would have a screen inside. The project which would collect real world machine data such as location based latest news and headlines, weather reports, and as well as show us the local time. The data would be transmitted from the machine and would be managed in a central database. Noobs OS is installed in raspberry pi via booting in the storage device. Then our own python script is compiled. This program consist modules namely Imagelib, Opencv2, OS and time. The weather API (Application program interface) is used to get the dates from the accurate weather.io.

This API provides the weather for the certain areas. This displayed on the Mirror. This weather API include Time and calendar also. The news section is completely depend on the google RSS feeds. The international to regional news is displayed and can be adjusted with a button. The USB camera is used to detect the face.

The opencv2 module is used to do face recognition. First the face dataset of the user is record. Then the application is made to run along with the machine learning algorithm. Once the verified face come into the frame, then their gmail account is displayed.

### V. RESULT AND CONCLUSION

The proposed work will be very efficient and time saving. It includes two major parts displaying features such as weather of the city, latest updates of news and headlines and local time



Fig.3 Mirror Displaying Time,Date and Day

corresponding to the location and face recognition by which individual's mail can be displayed in the mirror itself. The future work includes comparison of facial features on present day and previous day, making calls and voice command.



Fig.4 Mirror Displaying News Feed

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## REFERENCES

- [1] Jose, Jane et al. "Home Automated Smart Mirror As An Internet Of Things (IoT) Implementation". IJARCCCE Vol. 6, Issue 2 (2017)
- [2] Adobe Flex 2 <http://www.adobecom/products/flex/>; accessed: February 2017.

- [3] Liyana Zahari, Zarith, Azliza Mohamad Arshad, and Saidatul Najihah Abdul Ghani. "An Implementation Of Raspberry Pi On Children Tracker Application". International Journal of Applied Engineering Research Volume 11.Number 6 (2016)
- [4] Biswas, Mendrela et al. "Raspberry Pi Based Patient Monitoring System Using Wireless Sensor Nodes". International Research Journal of Engineering and Technology (IRJET) Volume: 03.Issue: 04 (2016)
- [5] M. S. Raisinghani, A. Benoit, J. Ding. M. Gomez, K. Gupta, V. Gusila. D. Power, and O. Schmedding. Ambient intelligence: Changing forms of human computer interaction and their social implications. Journal of Digital Information, 5(4), 2014.
- [6] F. Bomarius, M. Becker, and T. Kleinberger. Embedded intelligence for ambient-assisted living. ERCIM News, 67:19-20, 2016.[7] P.L. Emiliani and C. Stephanidis. Universal access to ambient intelligence environments: Opportunities and challenges for people with disabilities. IBM SystemsJournal, 44(3):605-619, 2005.
- [8] M. Friedewald, O. Da Costa, Y. Punie, P. Alahuhta, and S. Heinonen. Perspectives of ambient intelligence in the home environment. Telematics and Informatics, 22(3):221-238, 2005.
- [9] Tatiana Lashina. Intelligent bathroom. In European Symposium on Ambient Intelligence (EUSAI'04), Eindhoven, Netherlands, 2014.
- [10] Dr. V.Ramya., and G. Thirumalai Rajan. "Raspberry Pi Based Energy Efficient Industrial Automation System". International Journal of Innovative Research in Computer Science and Engineering (IJIRCSE) Volume: 02.Issue: 01 (2016)