

IoT based Smart Mirror using RASPBERRY PI

Manjunath Singh.H¹, Deepika A N², Kavya Shree S³, Ramya R⁴

¹Department of computer science and engineering, Dr.TTIT. Kgf

²Department of computer science and engineering, Dr.TTIT. Kgf

³Department of computer science and engineering, Dr.TTIT. Kgf

⁴Department of computer science and engineering, Dr.TTIT. Kgf

Abstract: As the world is running at a faster pace, an individual finds it difficult to take time to get to know the vital information like news updates, weather forecasting, reminders in order to plan the day accordingly along with getting ready in the morning. Instead of allotting separate time for the morning updates, an individual can view the updates of required while getting ready in the morning, which saves time. A Smart Mirror is used to display news, time, weather updates and it is based on Raspberry Pi 3B+ and part of home automation. In this we are displaying the content required by the user on monitor and a two way mirror attached to it, which is enclosed in a wooden frame. As part as now, people are usually preferring 'Multi-tasking' as it became the usual habit for most of the people. The Smart Mirror aims to display the information to the user like time, date, weather calendar, reminders and news- updates.

Keywords: RaspberryPi-3B+, Multi-tasking, News, Reminders News-updates, Calendar, Weather-updates.

I. INTRODUCTION

Everything in the world is tending towards a greater development and everything is connected. Day by Day, everything in the world is being connected to one another. More number of devices are being connected to the

Internet. Individuals are tending towards smart devices rather than conventional things. Everything is getting into "Smart". Usually Mirrors are used for grooming purposes in a man's daily life. In this fast pace of life, man is moving towards "Smart" devices. Internet plays a vital role for getting connected and it plays a key role for Being Smart. Smart Mirror is a device which displays various information like news, weather updates, reminders, time and date. Man in his hectic life finds it difficult to find time to read news-paper or to get some important updates. An individual while getting ready in the morning, he can check out the weather forecasting and can plan his day accordingly. He/She can also check out the reminders and complete their tasks. "Multi-tasking" has become a part of an individual's life and these mirrors are very useful. A Smart Mirror is a device which displays various information to the user while working as a "conventional" mirror.

II. METHODOLOGY

The Smart mirror is a device which displays the information required by the user as well works as conventional mirror. We have used an LED screen as an interface between the user and mirror. The monitor is connected to the Raspberry Pi-3B+, then the required information by the user is retrieved through Wi-Fi access. The information which is to be displayed is pre-requisitely set by the user. The LED screen is used to display the required information for the user. In this, time and date, weather updates, calendar, reminders and news-updates are displayed on

the mirror.

- Time and Date: Time and Date are displayed on the mirror.
- News-Updates: News updates are retrieved from Google News and displayed on the mirror.
- Weather Updates: Weather information is taken from Open Weather Map. The current weather and forecasting is displayed on the mirror.

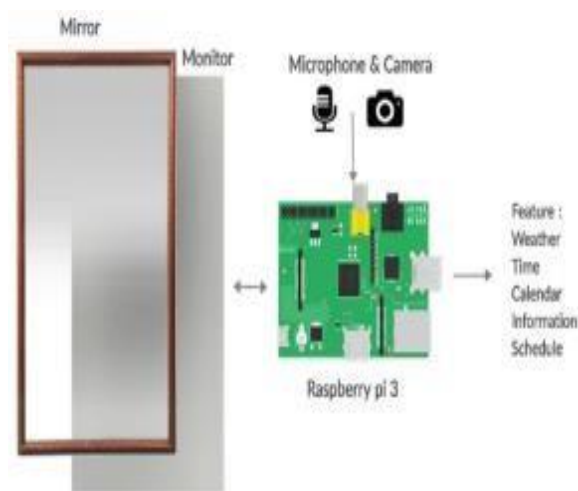


Fig1.Smart mirror design and architecture

- Reminders: The reminders are retrieved from Google Calendar and are displayed on the mirror.
- Calendar: A monthly calendar view is displayed.

The mirror will perform various tasks, such as display calendars, given reminders, displaying user task lists, approved dates and times, displaying finances, information, and schedule of activities. It can also ask the user about the tasks, whether they want to do or deny carrying out daily tasks.

The Smart Mirror, where a two-way mirror, LED monitor, Raspberry Pi 3B+ is used. Raspberry-Pi 3B+ has built in Wi-Fi access such that the information which is displayed on the monitor is accessed via Wi-Fi. A two-way mirror with wooden frame is attached to the LED monitor, such that the information displayed on the mirror is appeared on the mirror.



Fig.2. A Two-Way Mirror

**Fig.3 Wooden case attached to the Two-way Mirror
(Please refer page 25)**

III. RESULTS



Fig 4. Current Weather and Weather forecasting is displayed on the mirror.

Fig 5. Time and Date, Calendar in monthly view is displayed on the mirror



Fig 6. Updated News can be displayed in the mirror.



Fig 7. Face Recognition and the smart mirror

The Mirror displaying the required information, working as “Smart” as well as “conventional” mirror too.

IV. CONCLUSION

The main aim of the Smart Mirror is to provide a mirror the functionality of being smart while acting as conventional mirror. An individual while getting ready can have the important updates in order to plan accordingly. Instead of allotting separate time schedule for the daily

feeds like news, reminders, he/she can view the updates instead of time consumption. We have displayed time and date, current weather and weather forecasting, news, reminders and calendar. The conventional mirror became an interactive mirror by providing the required information. Further, we can add other real time application like Google Maps.

REFERENCES

- [1]. Holler J., Tsiatsis V., Mulligan C., Avesand S., Karnouskos S., Boyle D [M2M to IoT— the vision: from M2M to IoT From Machine- to-Machine to the Internet of Things: Introduction to a New Age of Intelligence,2014].
- [2]. Chen M., Wan J., Li F [Machine-to- machine communications: architectures, standards and applications KSII Transactions on Internet and Information Systems, 2012].
- [3]. Williams J [Internet of Things: Science Fiction or Business Fact. Harvard Business Review Analytic Services Report, December 2014.
- [4]. Kasim, S., Hafit, H., Leong, T. H., Hashim, R., Ruslai, H., Jahidin, K., & Arshad, M. S [SRC: Smart Reminder Clock. In IOP Conference Series: Materials Science and Engineering, 2016].
- [5]. Richard G. Weigel [Magic Mirror-Table with Social-Emotion, IEEE International Conference on Consumer Electronics (ICCE), 2012].
- [6]. .InternationalTelecommunication Union [Harnessing the Internet of Things for Global Development, 2013].
- [7]. Mohammed Ghazal, Tara Al Hadithy, Yasmina Al Khalil, Muhammad Akmal, and Hassan Hajjdiab [A Mobile-Programmable Smart Mirror for Ambient IoTEnvironments- 5th International Conference on Future Internet of Things and Cloud Workshops, 2017].
- [8]. Felix Bork, Unchen Munich, Roghayeh Barmaki, Baltimore MD, Ulrich Eck [Exploring Non-reversing Magic Mirrors for Screen-Based Augmented Reality Systems, IEEE Virtual Reality (VR), Los Angeles, USA 2017].

Fig.3 Wooden case attached to the Two-way Mirror

