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Survey on IOT-based smart mirror with temperature and news

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Abstract

In earlier days, data was accessible through our electronic devices. Our device is similar to the daily mirror, but with advanced technology like displaying the weather forecast, temperature, time, and daily news. Using the Raspberry Pi, data will be displayed on the device. Our planned system permits us to build such mirrors that mirror to receive online news and display the mirror with present temperature, and weather reports. Our device makes use of a raspberry pi primarily based on a total processor board along with presentations that can be interfaced together. We tend to use an exactly modeled panel to construct the outer frame. Then we use specialized glass with a back frame to enclose the system. The frame cavity is currently fitted with precisely positioned mounts for the display housing to be fitted in the mirror. This is often necessary to achieve the desired effect. Currently, we use the raspberry pi to attach web victimization to an IOT circuit through the employment of a Wi-Fi module.

Keywords: Smart mirror; Raspberry pi; LCD Display; Two ways mirror; Monitor; Power supply; HDMI cables

1. Introduction

Sensor-equipped mirrors are something out of science fiction. They are a component of a hopeful future vision that envisions a world where displays and data are available everywhere and ready to feed you any information you require at any time's notice. In essence, the mirror appears to be a standard mirror. However, the scene alters when a person approaches it. The mirror offers a practical, approachable, and interactive user interface for accessing the user's social media accounts, couriers, etc. It has widgets that show the current weather or not circumstances, time, events, or recent headlines. The Smart Mirror would aid in the construction of smart homes. Integrating artificial intelligence in addition to locating its industrial applications and changing home appliances makes it simple. The virtual dressing is a clever method to test your sense of style, and it makes life in malls much simpler. Having such an intellectual mirror in the home can only enhance its beauty.

Python is used to program the Raspberry Pi, which connects to a monitor with an integrated speaker to give both an onscreen user interface and voice assistance. The phrase "Internet of Things" (IoT) refers to the Internet's ability to connect physical objects. Anything that has the capacity to gather and transmit data over a network without the aid of a human might be considered an "Internet of Things" (IoT) "thing." The devices have technology built into them so that it is possible to monitor and operate them from a distance. IoT was essentially developed to reduce human effort and enable devices to complete tasks by gathering data from their environment. An alarm clock that wakes you up 15 minutes later than usual because it predicted a 15-minute rain delay is an example of the Internet of Things (IoT). House walls that change color based on a person's mood are another example of a home automation system powered by the Internet of Things. IoT is a bigger component of home automation that uses the internet to remotely control practically all domestically used equipment. To minimize human labor, smart mirrors have also been developed.

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Every home has a mirror, which is a basic item. Technology has been incorporated into it to make the mirror smarter and more useful. Today, we receive all of the updates on our smartphones, which we check promptly, but during morning rush hour, everything must be done in a hurry. Smart Mirror lessens this urgency by giving you the essential information you require to check first thing in the morning, such as the current date, local time, weather updates, news feed, and today's schedule, all by using face recognition. The smart mirror is a wall-mounted mirror that shows the time, date, weather forecast, and other relevant information. In recent years, more and more devices have been connected to the internet. More and more individuals throughout the world are connected, thanks in large part to the internet.

The concept of the "Internet of Things" emerged as devices started to become smarter and smarter, mobile phones evolved into smartphones, and most crucially, a variety of devices were connected to the internet. Our initiative intends to investigate more industries where this technology may be applied. It intends to integrate this technology into a mirror because, generally speaking, people spend a lot of time looking in mirrors. In the same way that wall-mounted clocks and airport displays are common, we want to introduce this technology into our homes. The user benefits from this in terms of security. Smart mirrors can also be helpful for quickly viewing your Google feeds or for utilizing face recognition to get into Gmail accounts. By utilizing artificial intelligence, the smart mirror would assist in the development of smart homes and eventually find a position in industries.

The next section briefly discusses the literature review as well as the components and software that were described. The proposed mirror's architecture is then presented. The study also discusses the mirror's conclusion and its future applications.

2. Literature Survey

2.1. In order to fulfill the client's request in the shortest amount of time, M. Rodriguez

Martinez et al. (2004) [1] explore the topic of supplying such archives using Web administrations (turnaround time). The Smart Mirrors System is a distributed shared mirror framework that we propose. It constantly collects data from partners to determine the optimal method for handling follow while meeting each demand. The engineering of the framework, a cost model to determine the benefit time for each individual server, the exchange of metadata, and partner administration requirements are the specific research concerns being taken into consideration.

2.2. A magic mirror table is proposed as a prototype of smart furniture for the smart home by Yuan

Chih Yu et al. (2012) [2]. To record the watcher's external appearance, the proposed structure contains a camera. The framework can determine the viewer's mood by dissecting the articulations. When a viewer is experiencing a bad mood, the framework uses upbeat language and plays their favorite music to make them feel better. The trial findings show that the framework can lift the viewer's downcast mood. The suggested framework can also function as a schedule for occasion reminders.

2.3. An intelligent mirror was developed by Chidambaram Sethukkarasi et al. (2016) [3]

They can identify users using face recognition, identify emotions, track health metrics, and recommend attire. Their essay seeks to bring the concepts together around the idea of an intelligent mirror rather than delving further into any one of its topics.

2.4. According to S. S. I. Samuel (2016) [4]

A smart house is a connected home that connects all different types of electronic devices to communicate with one another online. These devices provide a domestic network in which communications are supported by multiple conventions. There is a problem with these devices' availability because they are developed using different benchmarks and breakthroughs by different firms. This essay aims to illustrate the remote protocols used in home systems and how they deal with availability issues in sophisticated home systems.

2.5. A smart mirror designed by Daniel Besseretal in 2016 [5]

It allows users to incorporate interactive fitness activities into their morning routines. Their solution makes use of a Wii Balance Board for presence detection and a Microsoft Kinectv2 for tracking motions.

2.6. According to B. Cvetkoska et al (2017)'s description [6]

Clever assistants primarily focus on basic human requirements. For instance browsing, planning, exploring, and other such activities. However, there aren't many concerned friends who are interested in how others are doing generally. In this essay, we focus on the possibility of using a smart mirror to detect medical issues. Another Smart eHealth Mirror display is suggested, which consists of a dazzling mirror that continues to work as a sharp assistant while chipping away at its own calculations. This model's recommendations for preventative medical services are followed by recommendations for pose issue identification, confront acknowledgment verification, and legitimate stance direction. The calculation recognizes the person's standing and cautiously examines how the person's stance and physique change over time. The obtained investigation's findings surpassed our expectations by significantly boosting the tried person's moral character. The evaluation results show the benefit of the clever calculation, which improved with each subsequent individual examination.

2.7. M. M. Yusri et al. (2017) present the expert that goes along with a framework [7]

What they propose is named Smart Mirror. It is a creative, locally-based Internet of Things concept (IoT). Clients can access data and manage the house's lighting thanks to this framework. It is possible to track pertinent data, such as time and date, weather, warnings, traffic, and area delineation. The framework uses Sonus innovation as a means of fostering communication between systems and people. Therefore, in order to guarantee the framework's response, clients must provide the framework with guidelines orally. The Evolutionary Prototyping methodological technique, which quickly plans the framework and assembles all requirements, is used in this project. A model is developed to evaluate and communicate input. The model will undergo improvements to ensure client satisfaction.

table 1 Literature survey

Year	Author	Advantages	Disadvantages
2004	M. Rodriguez-Martinez et al. [1]	System cost model to assess benefit time by every specific server.	Not compatible with other operating systems such as Windows
2012	Yuan-Chih Yu et al [2]	With the camera, it captured the mood of the person and gives music to listen.	Lack of human interaction
2016	Chidambaram Sethukkarasi et al [3]	It uses for face recognition, identifying emotions, tracking health metrics and recommending attire	The main disadvantage is it gives some false predictions
2016	S. S. I. Samuel [4]	It is useful for connecting home electronic devices.	The smart mirror is quite expensive due to their precision
2016	Daniel Besseretal [5]	It is useful for Microsoft kinectv2 for tracking gestures and a Wii Balance Board for presence detection.	We can't use this for home appliances
2017	B. Cvetkoska et al [6]	A mirror that uses to detect medical issues.	Sometimes the medical calculations are wrong.
2017	M. M. Yusri et al. [7]	It can access data and manage and easy to communicate framework.	Swipe gestures are sometimes unreliable.

3. Conclusion

Smart mirrors have a lot of potential to improve how users interact with and access information. They can be included as a thief detection system in addition to simply enabling consumers to view pertinent information. Our intelligent mirror reduces waiting time and streamlines information availability. In our upcoming work, we'll explore how to best deliver service experiences in the home environment by utilizing the user's context and the environment. By including further functionality, such as integrated light settings, voice processing, etc., the system can be made far more useful to the users. An efficient and intelligent smart mirror that maximizes our work time and boosts our everyday productivity has been developed. In the field of IoT and home automation, the Smart Mirror will be crucial. This is more attractive

because it may serve as a conventional mirror as well as include additional features like a weather forecast, calendar, time, etc

Compliance with ethical standards

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Disclosure of conflict of interest

The authors have no conflicts of interest to declare. All co-authors have seen and agree with the contents of the manuscript and there is no financial interest to report. We certify that the submission is original work and is not under review at any other publication.

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