IOT BASED SMART MIRROR

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Keywords:

Smart mirror, IOT, Security, health sensor, Google Assistant.

Introduction:

Nowadays in this world, technologies are advancing day by day. For this reason, maximum devices need to be updated with smart technology. We got many smart devices like smart TV's, watches, phones etc. which have various applications. Artificial intelligence (AI) organizes smart systems and creates smart equipment that makes gadgets more interactive with the user. A mirror is one of the most often used items in most households. 'Everyone is extremely preoccupied with their daily tasks, making it impossible for them to check daily essential information such as the latest news, to-do lists, social media newsfeeds, traffic updates, weather forecasts, and so on. This concept allows users to access all of this information on a smart mirror, which is automatically updated from time to time. In addition, when a camera isput behind the mirror, smart mirrors are employed for security purposes. An AI-based facial identification mechanism is implemented, which detects unknown people and sends a notification to the user's mobile phone. The Google voice assistant is incorporated, and the user may use it to interact with the mirror, watch YouTube videos, listen to music, and so on. In addition, users will be able to monitor their health condition using this system. It will measure the user's heart rate, body temperature and oxygen level. All these values will be displayed automatically on the mirror and if these values are not in normal range, then it will alert the user.

Objective:

In this era of modernization, we've all been exposed to several things that cause the event of the country. Usually, for an individual it becomes difficult to find enough time in the day to accomplish all the tasks that are part of life, so multitasking becomes necessary. Thus, smart devices are used which makes life simpler. Internet of Things offers limitless opportunities to reinforce communication between devices and data sharing but this same feature makes it

highly vulnerable from the purpose of security. Our project aims at including IOT technology in a mirror,as in general people spend a considerable amount of time in front of a mirror. Smart mirror is a wall mounted mirror which displays weather, time, calendar, latest news headlines, events and other basic information related to our needs. Smart mirror interacts with user through google assistant. Security monitoring is done using smart mirror and several health sensors are included to monitor user's health.

Methodology:

This smart mirror has various features. Starting with the security, this IOT based smart mirror acts as security device where the camera is placed behind the mirror. This camera continuously monitors the surroundings, detects for unknown faces and alerts the user by sending the captured image to the user mobile device. It includes google voice assistant which is used for live interaction with the mirror which can play YouTube videos, music, etc. on giving the voice command. The voice command is given through the microphone and speakers are connected for the output audio. Pulse sensor and temperature sensor are interfaced with the mirror which measures heart rate and temperature of the user and alerts the user if it is not in the normal range. Google voice assistant is used to activate the mirror display from sleeping mode when a user appears in front of the mirror. All the information is displayed on the LED screen connected with the raspberry pi. The components used are Raspberry pi 3b+, Temperature Sensor GY-906, Heart Sensor max30100, webcamera, USB Microphone, Speaker, Monitor.

Block Diagram:
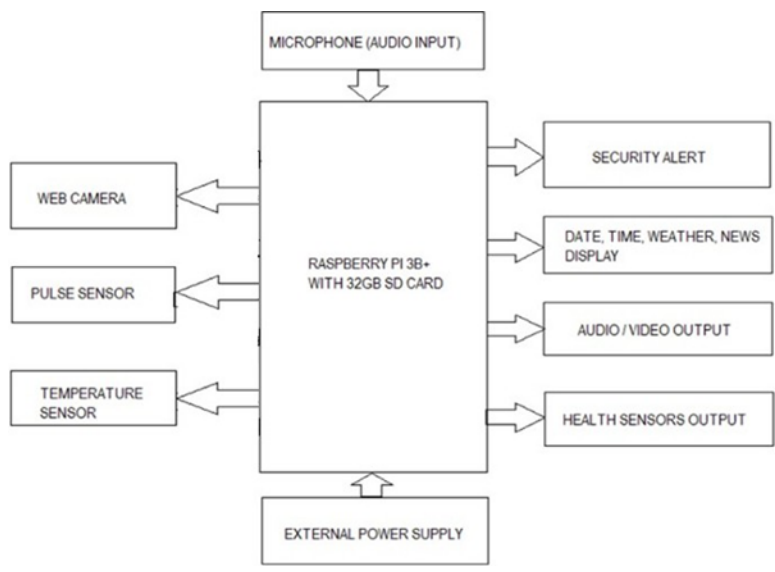
Flowchart:
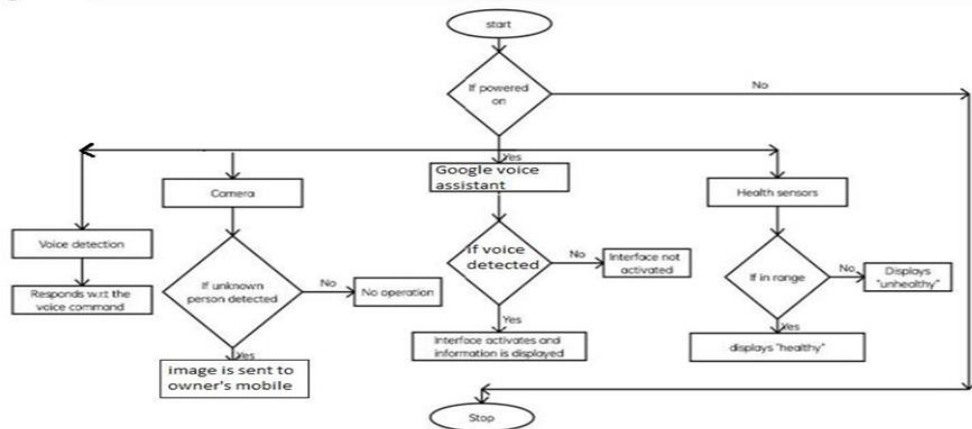
Result and conclusion:

The smart mirror shows basic information such as date, time, news and current weather condition. The google assistant is activated on receiving the command "Jarvis" or "ok google" once activated it responds according to user commands. The screen is activated using google voice assistant.The camera is used for face recognition and sends images to owner's mail when an unknown face is detected. The health sensors helps to keep track on user's heath.

The smart mirror shows basic information such as date and time, news and current weather condition. The google assistant is included with raspberry pi where user can interact with mirror. The display gets activate through google voice assistant thus displaying all the information. Webcam is connected to the raspberry pi and sends an image to the owner's mobile if an unknown face is detected. The health sensors are interfaced to monitor the user's heath.

Future scope:

This smart mirror can be further developed for home automation such as turning on lights, fans etc. and other home appliances can be controlled, also various other parameters can be included according to the user's requirement. The mirror with a larger display in length can be used as a virtual trial room where the dresses can be tried out virtually when person stands in front of the mirror. On basis of the location commands, google maps can be activated and directions can be shown.