Smart Mirror

A smart mirror is a two-way mirror with an electronic display behind the glass. The display can show the viewer different kinds of information in the form of glancing information, such as weather, time, date, and health parameters. This product would be useful for busy individuals that want to multitask and stay informed while on the go. Instead of constantly pulling out a device, one could get informed while finishing daily grooming tasks. I designed and built my own prototype and delved into the world of do-it-yourself smart mirrors.

This project depicts the design and development of smart mirror that represents an elegant interface for glancing information and also used for monitoring health parameters, weather parameters and time.

15 inches LCD monitor along with tinted screen interfaced to the raspberry pi. Tinted glass act as a smart mirror. We place an ultrasonic sensor at front side of the mirror is used to detect the person. When the sensor detects the person, it will pass the information to the raspberry pi. Then raspberry pi switch on the screen and it will display the time and environmental parameters and also health parameters details.

This mirror monitors the health parameters such as person heartbeat, body temperature, spo2 and respiratory using sensors. This system monitors the weather parameters such as ambient temperature, humidity, altitude and pressure using sensors. If the sensor data crosses the set limit it will activate the buzzer for alerts.

The objectives of the project are:

- Design a smart mirror monitoring health parameters, weather parameters and time.
- It activates the buzzer when the sensor data crosses the set limit.
- Using raspberry pi to achieve this task.

Components used:

- Raspberry pi.
- 5vDC,230V AC power supply.
- Ultrasonic sensor.
- MAX30100 (Heartbeat and spo2).
- Temperature sensor.
- Respiratory.
- SD Card.
- 15-inch LCD screen with tinted glass.
- DHT11(Digital temperature and humidity) sensor.
- BMP180 barometric pressure sensor.
- Buzzer.

Software's used:

- OpenCV image processing.
- Linux OS.
- Python language.

Block Diagram:

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