Smart Mirror

Saket Saurabh

This prototype of smart mirror shows how we can add the face recognition functionality on the mirror to enhance its capabilities by showing personalised feeds to each user.

1 Introduction

In this era of technology freak world, smart mirror is slowly making its place among the ubiquitous computing devices. A smart mirror is built by placing a glass or two-way acrylic mirror, in which one side reflects and act as a mirror and other side allows light to pass through it, over a screen such as iPad, monitor, LED or TV. The technology is driven by a Raspberry Pi or Windows PC. The main advantages of smart mirror are that it adds futuristic approach to the mirror, also it helps us to save our time like while brushing or bathing we can check the news feed, weather forecast etc. If we use smart mirrors in the window of the public transport, it can help the passengers to know about the weather forecast, time left to reach the destination, news etc.

2 History

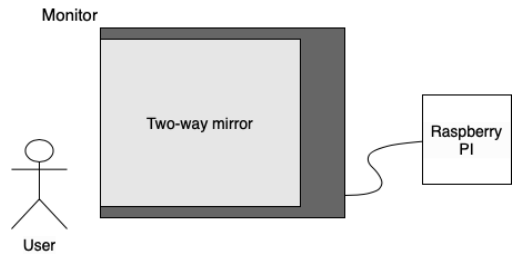
It is hard to find the exact origin of the smart mirror as over the years many people have worked on developing the prototype. One of them is by Google Engineer, Max Braun who was working for the google glass project. Similarly Michael Teeuw's Magic Mirror [1] and Hannah Mittens Morrison's HomeMirror [2] inspired many people to work on this idea.

3 Implementation

My implementation of smart mirror works on raspberry pi 2, and a two-way $10in \times 10in$ mirror installed on a monitor. The UI design and the base features are based on the Evan Cohen's Smart Mirror [3]

The mirror provides a facial recognition service, which can be used by the users to open their personalized screens. There they can see

Setup



their private information like tasks, personalized news, etc. The facial recognition algorithm uses HAAR cascade to detect the face of the user and then uses Local Binary Patterns Histograms Face Recognizer to recognise the face.

The user preferences and the training images are collected through an Android app. The app also provides the functionality like updating the tasks, setting news preferences, changing the layout of the mirror display.

The final prototype of my smart mirror can be seen on YouTube

References

[1] *Magic Mirror Github*, https://github.com/MichMich/MagicMirror

[2] *Home Mirror Github*, https://github.com/HannahMitt/HomeMirror

[3] *Smart Mirror UI concept* https://github.com/evancohen/smart-mirror