CALIFORNIA SCIENCE & ENGINEERING FAIR
2018 PROJECT SUMMARY

Name(s)	Project Number
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Project Title

Smart Mirror: An Informative Mirror that Displays Date, Weather, and Homework Data

Abstract

Objectives/Goals

Problem: How can technology be used to make a hectic morning easier?

Solution: A smart mirror can be built by designing an HTML page which is displayed on a mirror. The mirror contains weather information and assignments.The useful information exhibited can make mornings more relaxed.

Methods/Materials

For my project, I used a monitor which displays an HTML webpage, a laptop with python (a programming language) installed, a custom shadow box built to the size of the monitor, and a two-way mirror which acted as both a glass and a mirror. Datetime javascript displayed the current date and time as well as auto-update information to keep the page running in real time. A CSS file formatted the display. Also, Accuweather's developer API fetched the forecast and other weather information in JSON format. I took the homework information from the teachers Weebly sites.Finally, Beautiful Soup parsed the information from the teachers' web pages and extract the day's homework.

Results

A python script was written to create a webpage which is the format of the mirror. The webpage and mirror both displayed the date, time, and weather. Along with the weather, it displayed the suitability of certain activities and assignments from two classes. The design became more appealing when clipart images were added next to each of the various activities. The scripts were all searchable online, and for weather, accuweather.com was used. The webpage was displayed on the monitor, and a two-way mirror was attached to the monitor and framed. On the bottom, the homework assignments from two classes were shown. The homework for one class was shown for 5 seconds, then the homework for the other class was shown for 5 seconds, and the two were looped. Ultimately, the mirror displayed beneficial information in a sleek design.

Conclusions/Discussion

After finishing this project, it is much easier to interpret programming language. Weather icons can be added to the weather side to depict a certain forecast, such as a sun for a sunny day. Later on, instead of connecting a Mac to the monitor, a raspberry pi can be used, as it is far smaller and much more portable while still serving the same purpose as a laptop computer. It could also be voice controlled or gesture controlled. The basic idea and design of a smart mirror can be expanded on to create something that would largely impact the world of technology.

Summary Statement

An HTML page was developed which contained weather information, the date and time, and homework data, and was displayed on a mirror from a monitor.

Help Received

I developed the script myself, but received help to implement the desired functionality by my dad, Mr. Ahuja who is a Hardware Engineer.