My Henry Morris report-
-by Megan R Chapman

What is a smart mirror?

After a lot of research and thinking, I decided to program and build a smart mirror. A smart mirror is a two-way mirror with an electronic display behind the glass or acrylic sheet. The display can show many things such as: time, date, weather, news updates, your calendar and many more.

Inspiration

I originally was not sure on what I wanted to do for my home project as there are so many ideas and possibilities. After researching many different projects, I thought that the smart mirror would be best suited for me. The reason that I decided to build and program a smart mirror was because I really enjoy creative design and computing at school and wanted to take it a bit further. By doing this, it has helped me learn more about programming and I hope that it will help me in the future.

Building and programming the smart mirror

The first step in my design process was to list all the components that I needed for the raspberry pi (a low cost credit sized computer that enables you to programme). After that I brought the raspberry pi, an LED monitor and power supplies required to get me started. A few weeks later, after all the items had arrived, I set them all out on my desk and got started with the programming ((see picture 1) see picture 2). To start with I downloaded a new software then programmed the raspberry pi, so the screen was landscape then downloaded the magic mirror software (see picture 3). Once installed I looked at customising it to suit my own needs. Firstly, for the display aspect, I chose the weather app I wanted to use, added onto the smart mirror, then set up my location and

the position that I wanted it on the screen. Secondly, I added the BBC news onto the smart mirror and it now gives me latest updates that then pop up on the bottom of the screen. After that I decided to add my calendar to the top right corner of the screen (see picture 4). To begin I struggled with how to link the calendar with my phone but after some research I managed to sort it out. And finally, I edited the motivational quotes to what I wanted them to say ((see picture 5) see picture 6).

The next step in the design process was to take apart the computer monitor. This was quite difficult because there were not any visible screws to undo so the plastic covering would come off. After a lot of struggling I finally managed to get the plastic off and carried on getting the dimensions for the frame (see picture 7). Next I had to construct a frame, because of how I wanted the mirror to look and what I added to it meant that I would have had to build my own frame. After I had measured the screen I went to B&Q and brought two lengths of wood for the frame. A few days later I started to mark out the wood to the right lengths for when I cut it. The following weekend I started cutting and putting the frame together (see picture 7). Also, I decided to measure out and cut the acrylic sheet to the correct size, so it is ready when I need it. To construct the frame, I used some screws ((see picture 8) see picture 9) and then used some Polyfilla to cover up the screws. The next day after it had dried, I started to sand down the frame to neaten up the edges.

At the moment I am a bit behind on making the frame, but I know what I need to do next. To start, once I have sanded down the frame, I will paint the wood with a white base coat then one or two layers of topcoat, depending on how it looks. Once all the paint has dried, I will add the speakers to the side fixing in place with a hot glue gun. After that I will get piece of acrylic sheet that I have already cut to the same size as the LED screen and carefully peeled back the protective sheeting and placed it into the frame, after that I will place the monitor on top and then

secured it in place with 4 plastic blocks on each corner. Then I will secure the raspberry pi onto the back of the screen and make sure that all the wires are connected and stuck onto the back of the screen too. Once all this has been done, I will attach the wall mount to the back of the frame, drill holes into the wall where I want it placed and screw the frame into the wall securely.

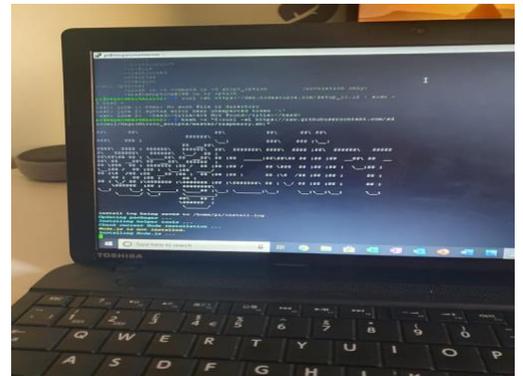As I have not finished the smart mirror yet, I will email you some pictures of the finished product hopefully in a week or so.

I really enjoyed doing this project and am looking forward to seeing the finished product and I hope you are too. I'm really grateful to have been given this opportunity-thank you so much!
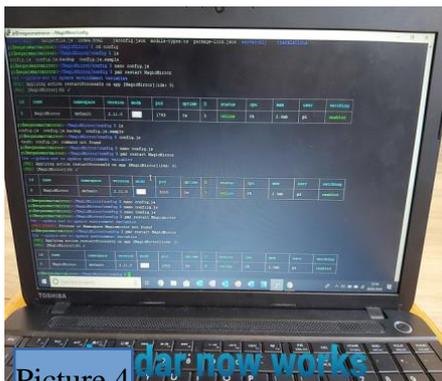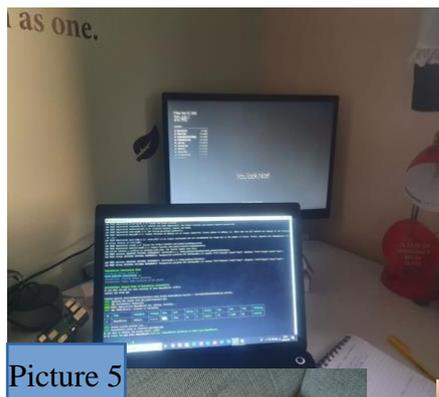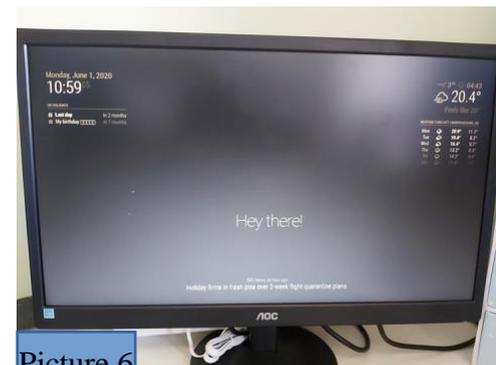
Picture 1
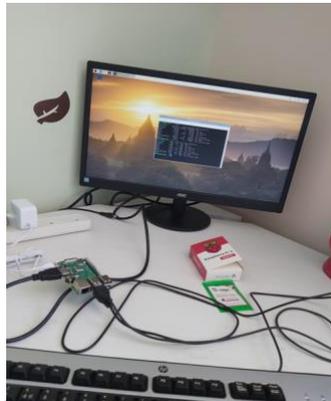
Picture 2

Picture 3

Picture 4

Picture 5

Picture 6

Picture 7

Picture 8

Picture 9