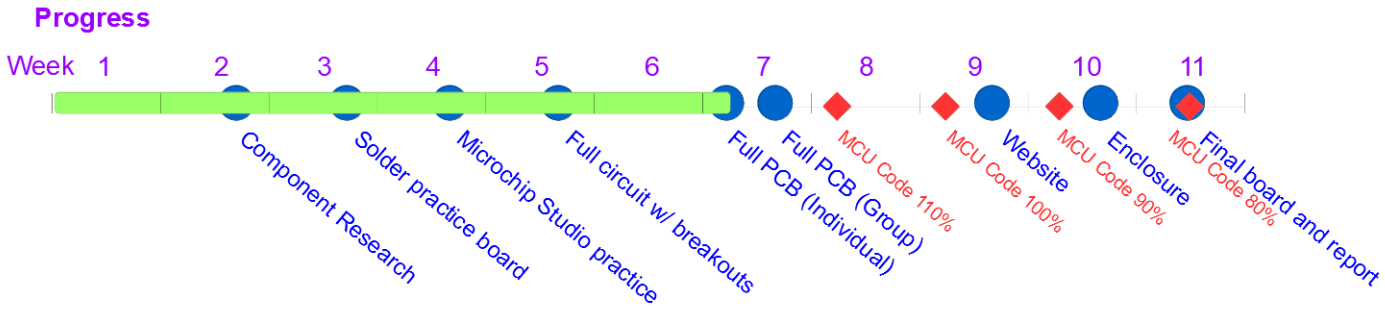
EE 326: Electronic System Design 1

Task 6: Website Design

Due: Mar 2, 2023



Please complete this assignment with your group. To get credit for your work, please upload the following to Canvas.
1) Your zipped webcam folder.
2) Your wireframe sketches.
3) A screenshot of your website audit results.
4) A video of you browsing to each page of your website.

For this assignment, you will design a website. Even though we are only making a webcam, you will make a website template for a general home automation system. You will make (at least) 3 web pages: your home automation homepage, your webcam page, and an info page. Each of these will include an HTML file, a CSS file, and (probably) a JavaScript file. Make sure to use the provided files (which came with the WiFi firmware you loaded) to start off your webcam page. The HTML is a simple template, the CSS provides an example style rule, and the JS contains the necessary functions for Websockets operation. Please follow these specifications:

- Before you start writing code, you must draw a wireframe for each page you plan to make. You can use paper, or a computer tool, such as Balsamiq (which I showed in class). You must also include these drawings in your submission.
- On the webcam page:
  - In the HTML, include at least:
    - A title.
    - A button to start/stop the webcam stream.
    - A timestamp of the displayed image.
    - The webcam image.
  - In the JS, complete the code specified by `//*** ***//`.
  - In the CSS, include at least:
    - Two color specifications.
    - Two font sizes.
    - An animation (e.g. button click, color change).
- For the entire website, make sure to include a navigation bar to get you to the homepage, the webcam, the info page, and to the WiFi file editor. You will not be able to get back to your site with a link from the WiFi file editor (unless you change the WiFi firmware to contain this, which is not part of this assignment but you can try). Therefore, make sure this link opens in a new tab or window by default.
  - The default page for your ESP32 will be "webcam.html" until "index.html" exists, at which point it will automatically switch to "index.html" as the main page.
  - To access the file editor, you need a link to http://<IP_ADDRESS>/edit. However, you can use relative addressing, for example `<a href=''/edit''>File Editor</a>`.

- Your website has to get at least a 70 for all the audit measurements when you run a Google Chrome Audit. To run the audit, open the Chrome Inspector, go to the "Lighthouse" tab, and click on "Generate report". Make sure to choose the following Categories: Performance, Accessibility, and Best practices. Make sure to run the test both for Mobile and Desktop. You can use the default Navigation Mode.
- Make sure your site looks good on a vertical Pixel 5. This is of course a subjective requirement, as there is no real way to quantify this.
- Note: the WiFi module has only 8 MB of Flash memory. If you have large images, store them somewhere else (e.g. in a Google Drive folder), and link to them via URL.

Feel free to get creative! You can definitely include more pages if you would like.

Don't forget to upload your zipped folder with your website pages, as well as your wireframe sketches.

On your ESP32 module, you should have a flat file structure with (at least) the following files:

- **Home Page Files**

  index.html: The homepage. Include a navigation bar (linking to at least the specified pages), some general information about your system, and an image.

  homepage_styles.css: Styles for the homepage.

  homepage_functions.js *(optional)*: Functions for the homepage.

- **Webcam Files**

  webcam.html: The webcam page. Follow the specifications listed above.

  webcam_styles.css: Styles for the webcam. Follow the specifications listed above.

  webcam_functions.js: Functions for the webcam. Follow the specifications listed above.

- **Info Page Files**

  info.html: Your info page. Include at least your name, email address, and a photo of you (for each team member).

  info_styles.css: Styles for the info page.

  info_functions.js *(optional)*: Functions for the info page.

- **Assets**

  my_photo.jpg: Photo of you (or your team) for the info page.

  homepage_photo.jpg: An image for the homepage.

FAQ

Q. What is the best way to preview what the page will look like?

A. Use Brackets' live preview feature to test your page in real time. Brackets is also installed on the lab computers.

Q. We are trying to test our webcam JavaScript. After hitting the start button, we hit the button again, but it needs to take a while to stop the connection. Is it as expected that we do not have the socket close immediately?

A. Yes, this is normal. It will usually take more time to close than to open.

Q. What templates can we use for our website? Can we use any framework we want?

A. There is no restriction on what you can use for your site, as long as you include the specifications.