

We were assigned the task of designing a SCARA robotic arm that would be accurate, fast, use G-code, be easy to manufacture, and use several types of writing tools. We added the additional requirements of including a third axis of motion and the use of direct user input.

Our team approached the project in a hands-on way. We began researching as soon as our group was formed and quickly purchased materials for the hardware and began programming. We kept in contact with one another outside of class hours and ensured that we all were accomplishing our tasks. Following the class structure allowed us to successfully complete our project. Our first block diagram design and subsequent block checkoffs allowed us to put the different parts of our project together in a timely manner. We made revisions to the project as we found issues and always ensured that our work was high priority. As we neared the end of the project, we devoted extra time to testing and fixing errors that arose and making sure that our project would be successful regardless of the circumstances.

Our team learned a lot about the design process in a major project like this. We learned just how much time and effort needs to be put in to make a project as difficult as ours both work and work well. We learned about being helpful teammates and about how to apply ourselves in new situations. We all had to quickly learn new skills at times and had to develop perseverance to maintain the motivation to complete the project.

| Phase of Project  | Title                       | Due Date                | Type       | Complete                                                                                                                  |
|-------------------|-----------------------------|-------------------------|------------|---------------------------------------------------------------------------------------------------------------------------|
| Workshop          | Course Timeline             | January 13, 2023        | team       | <input checked="" type="checkbox"/>                                                                                       |
| Design 1          | FP Engineering Requirements | January 20, 2023        | team       | <input checked="" type="checkbox"/>                                                                                       |
|                   | Week 2 Progress Report      | January 20, 2023        | team       | <input checked="" type="checkbox"/>                                                                                       |
| Design 2          | Block Diagram               | January 27, 2023        | team       | <input checked="" type="checkbox"/>                                                                                       |
|                   | Week 3 Progress Report      | January 27, 2023        | team       | <input checked="" type="checkbox"/>                                                                                       |
| Build 1           | First Block Check Off       | February 3, 2023        | individual | <input checked="" type="checkbox"/>                                                                                       |
|                   | Week 4 Progress Report      | February 3, 2023 Friday | team       | <input checked="" type="checkbox"/>                                                                                       |
| Block 1 Checkoffs | Week 5 Progress Report      | February 10, 2023       | team       | <input checked="" type="checkbox"/>                                                                                       |
| PCB order time!   | Week 6 Progress Report      | February 17, 2023       | team       | <input checked="" type="checkbox"/>                                                                                       |
| Block 2 Checkoffs | Week 7 Progress Report      | February 24, 2023       | team       | <input checked="" type="checkbox"/>                                                                                       |
|                   | Second Block Check Off      | February 24, 2023       | team       | <input checked="" type="checkbox"/>                                                                                       |
| Integration       | Week 8 Progress Report      | March 3, 2023           | team       | <input checked="" type="checkbox"/>                                                                                       |
| System Checkoffs  | Week 9 Progress Report      | March 10, 2023          | team       | <input checked="" type="checkbox"/>                                                                                       |
| Final Product     | Self-Assessment             | March 17, 2023          | team       | <input checked="" type="checkbox"/>  |
|                   | Project Showcase            | March 17, 2023          | team       | <input checked="" type="checkbox"/>                                                                                       |