HTML 5 displays for on-board flight systems

By Chandika Silva

During my Internship at NASA in the summer of 2016, I was assigned to a project which dealt with developing a web-server that would display telemetry and other system data using HTML 5, JavaScript, and CSS. By doing this, it would be possible to view the data across a variety of screen sizes, and establish a standard that could be used to simplify communication and software development between NASA and other countries. Utilizing a web- approach allowed us to add in more functionality, as well as make the displays more aesthetically pleasing for the users. When I was assigned to this project my main task was to first establish communication with the current display server. This display server would output data from the on-board systems in XML format. Once communication was established I was then asked to create a dynamic telemetry table web page that would update its header and change as new information came in. After this was completed, certain minor functionalities were added to the table such as a hide column and filter by system option. This was more for the purpose of making the table more useful for the users, as they can now filter and view relevant data. Finally my last task was to create a graphical system display for all the systems on the space craft. This was by far the most challenging part of my internship as finding a JavaScript library that was both free and contained useful functions to assist me in my task was difficult. In the end I was able to use the JointJs library and accomplish the task. With the help of my mentor and the HIVE lab team, we were able to establish stable communication with the display server. We also succeeded in creating a fully dynamic telemetry table and in developing a graphical system display for the advanced modular power system. Working in JSC for this internship has taught me a lot about coding in JavaScript and HTML 5. I was also introduced to the concept of developing software as a team, and exposed to the different types of programs that are used to simplify team coding such as GitLab. While in JSC, I took full advantage of and attended the lectures that were held here on site. I learned a lot about what it is NASA does and about the interesting projects that are conducted here. One of the lectures I attended was about the selection process and the criteria that is used to select future astronauts for flight missions. This truly had an impact on my future plans as it showed me that this path was a viable option for me. After this internship I plan on completing my undergraduate course work and plan to move on for a masters degree. However, during the time in which I will be completing my masters course work, I would like to apply for the NASA pathways graduate program and, if I am accepted, eventually move on to being a full time civil servant. Working in NASA has not only been enjoyable, but full of information and great experiences that have motivated me to seek a full time employment here in the near future.