Introducing CUmakeit

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**Clemson University Releases Innovative Software for the Makerspace**

*Now Users can Sign in With the Tap of an ID, and Employees are Able to View Important Data in Seconds*

With CUmakeit, Makerspace employees can now manage their Makerspace experience with a single system, while allowing Makerspace users to seamlessly go from signing in to working on their projects. CUmakeit is a revolutionary product designed to facilitate a stress-free and productive environment for the Clemson Makerspace, allowing administrators to see vital data and statistics with ease, while also allowing users to easily see their scheduled tasks and project progress.

Prior to the release of CUmakeit, Makerspace employees found it difficult to effectively gather crucial data; the old system required employees to consolidate data from multiple third-party systems by manually entering the data into an electronic spreadsheet in order to create meaningful reports. This process required having a good understanding of different types of technology used by the Makerspace - a daunting task for employees with non-technical backgrounds.

CUmakeit allows easy access to aggregate print data, individual printer data, user statistics, user access credentials, and resource use statistics - all sortable and viewable by location, accessible to all employees of the space. This not only makes management of the space easier for the Makerspace interns, but allows for fast and easy data collection for the Makerspace’s funding proposals, the student-run organization’s main source of income. Furthermore, our system allows users to login with the swipe of a CUID card, and once logged in, allows them to view their 3D print history, as well as all of their ongoing prints.

Yan-Jing Ni, President of the Makerspace, says “With the new administrative dashboard introduced by CUmakeit, our jobs have never been easier as employees. It’s so much easier to see who is in the Makerspace and what certifications they have, which helps maintain the safety of our space. I don’t have to spend all day trying to go through five different systems to try and get the information that I need. This has made our job checking in students and gathering data for funding proposals exponentially faster, and now our employees of any technical background are capable of finding what they need.”

CUmakeit also provides improvements to the Makerspace’s user experience. Using the old system, it was confusing for students to sign into the space. Users had to manually enter their username, whereas other places on campus require a simple swipe or tap of our Clemson University ID card. Print logs were often missed because it required students to visit another station and manually input print information, and the only way to see what machines were available was in person or through the registration page. These problems not only made the space less efficient, but also resulted in a lot of key information about print jobs and material usage being lost.

CUmakeit introduces multiple new technologies in order to solve the users’ problems. To speed up the sign-in process, a CUID scanner was placed at the sign-in station, so students can now sign in with the tap of their ID. The need for students to manually enter information into the print logs has been eliminated, as this has been automated so that no valuable information will be omitted from the logs. The new user dashboard displays the user’s certifications, previous print jobs, and available machines, all in one place.

“As a student who frequents the Makerspace, the new system has really made things easier. The CUID scanner makes it quick and easy to sign in, and as soon as I walked in the employees knew who I was and what my certifications are. I like that the new user app allows me to see my previous prints and certifications in one place. I used to have to manually log everything I was going to print, but now that is automated and it saves me so much time,“ says Amy Lin, a mechanical engineering major at Clemson who often uses the 3D Printers for school projects.

Come see how CUmakeit improved the Makerspace today at the Watt Center or at Cooper Library! Also, please take advantage of the website to make reservations and contact the Makerspace with the following link: <http://ci.clemson.edu/blogs/makerspace/>

FAQ

1. What can be accomplished within the first semester?
   1. We plan on incorporating the various systems that the Makerspace uses into one centralized database and having an administrative dashboard for employees to interact with. We are focusing on the administrative side of the project for the first semester. Further semesters may focus on the user dashboard or different parts of the system.
2. What kind of systems are you incorporating?
   1. Currently the Makerspace uses 5 different systems - OctoPrint, Canvas, SuperSaaS, Excel, and a separate SQL Database. Our plan is to figure out what information from each of these systems is most vital to the employees, and include those into our database.
3. Will the system support updates and plugins?
   1. We are not planning on supporting any other outside plugins at the moment, but may be open to considering it in the future. We do plan on updating the software as needed.
4. How is the new database implemented?
   1. The relational database is implemented using the RDS service in Amazon Web Services. This provides high availability, scalability, security, and (with our documentation of our system) is easily understood and modifiable by any Makerspace DB admin.
5. How can the system accommodate expansion of the Makerspace into more locations?
   1. Currently the system tracks each location and machine as an individual IP address. Our solution proposes assigning an identifier to the IP address which can distinguish between locations. With this, new locations/machines will just be assigned an identifier to distinguish them from current locations/machines.
6. How can the system accommodate new machines?
   1. See Question 5.