**Disclaimer:** The Manufacturing Data Service (MDS) is much more than described below. I’m solely stating pieces of it to give context to my contributions.

The current way internal Autodesk teams and Autodesk partners are saving materials and machine data has some problems. To upload this data, they must manually create a library and outline what structure the data must follow to be uploaded into the library. Once the library is created they need to structure their data to match the schema specified by the library. Then they write code to upload it to their newly created library. As you might have guessed, users need to be technically savvy to do this.

Another problem that arises is the lack of versioning and access control. For example, imagine team A creates library "Steel" and for the next three years they add new facets to it. Then team B comes along and wants to utilize a portion of that library. To do that team B would have to import team A’s entire "Steel" library, even if they don’t need all the newly added facets. Not to mention every additional facet team B adds to "Steel" would affect all other teams utilizing that same library since they're pulling from the same place. That’s where the Manufacturing Data Service (MDS) comes in.

MDS solves these problems by creating versioning and access control so each team can maintain their own library while still making a global registry for other teams to pick and choose what they would like from it. MDS also has a feature that allows for queries such as *"I'm trying to 3-D print a part with this constraint. Give me a machine and material that would be able to do this for me."* This tremendously boosts efficiency for internal teams and creates a mini marketplace for external partners that have uploaded their data. MDS also solves the obstacle of needing to be technically savvy and knowing what JSON schema is! This is solved by the Form Builder, which is where I spent my time.

Form Builder is a web application that allows a user to create a data onboarding form through a quick and easy user interface. The form creator simply chooses which schemas/libraries they would like to import, selects the required and optional questions from those imports, arranges the questions, blocks, and tabs in the order they want them in, and optionally chooses input restrictions. Once that is all said and done- voila the form is created. Now the form creator can invite team members or clients to the form and start uploading data to MDS by simply filling out the form!

I was in charge of…

* Form validation for the entire Form Builder application – form creator view and end user view
* Designed schema for saving property panel data
* Developed the execution of display logic on the end user view
* The form creator view property panel

The property panel is in charge of…

* listing information about form fields that are clicked on
* changing question types such as checkbox, radio, file upload etc.
* adding input restrictions such as max length, file formats, number of choices selected, etc.
* adding help content such as tool tips
* adding display logic.

Display logic gives the form creator the ability to add logic to a question like “If answer A is chosen then hide tab 2 and show question 5.” I developed the execution of display logic on the end user page as well.