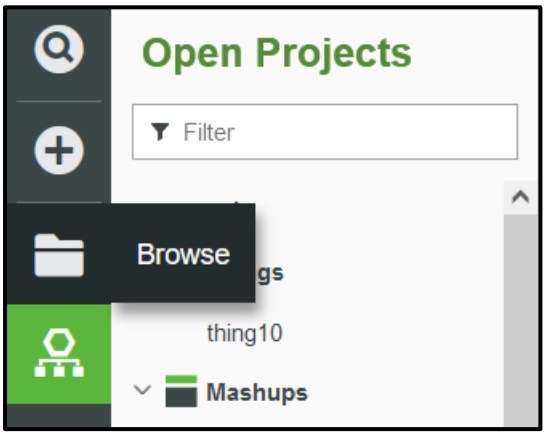
**AIM:** Designing of IIoT Dashboard for AS/RS System using Thingworx Platform

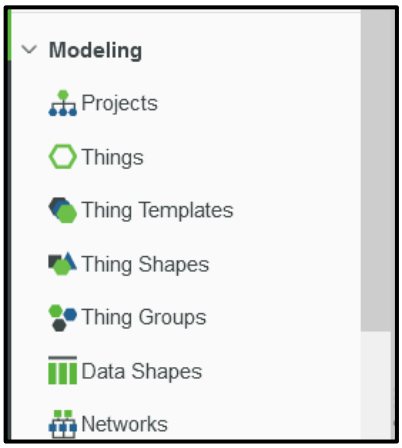
## Hardware Used:

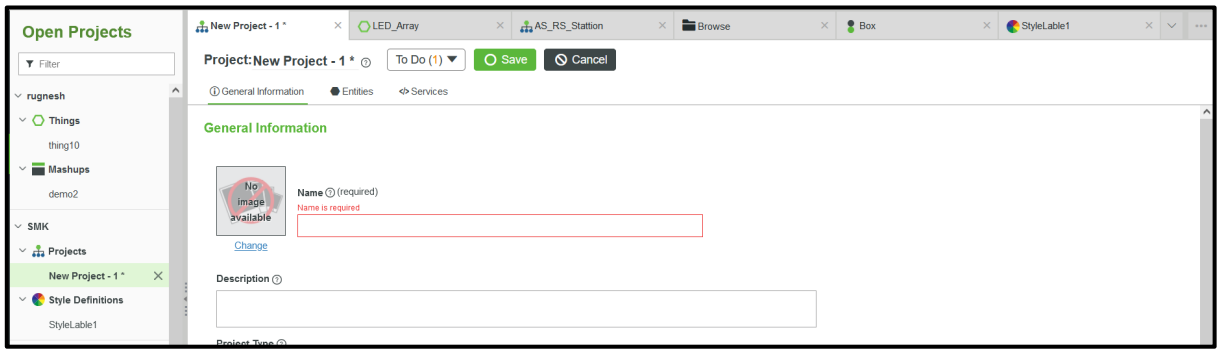
1. Omron PLC(NX102-9000)
2. Load Cell
3. Proximity Sensor
4. Limit Switches
5. LEDs

## Steps to create dashboard in Thingworx

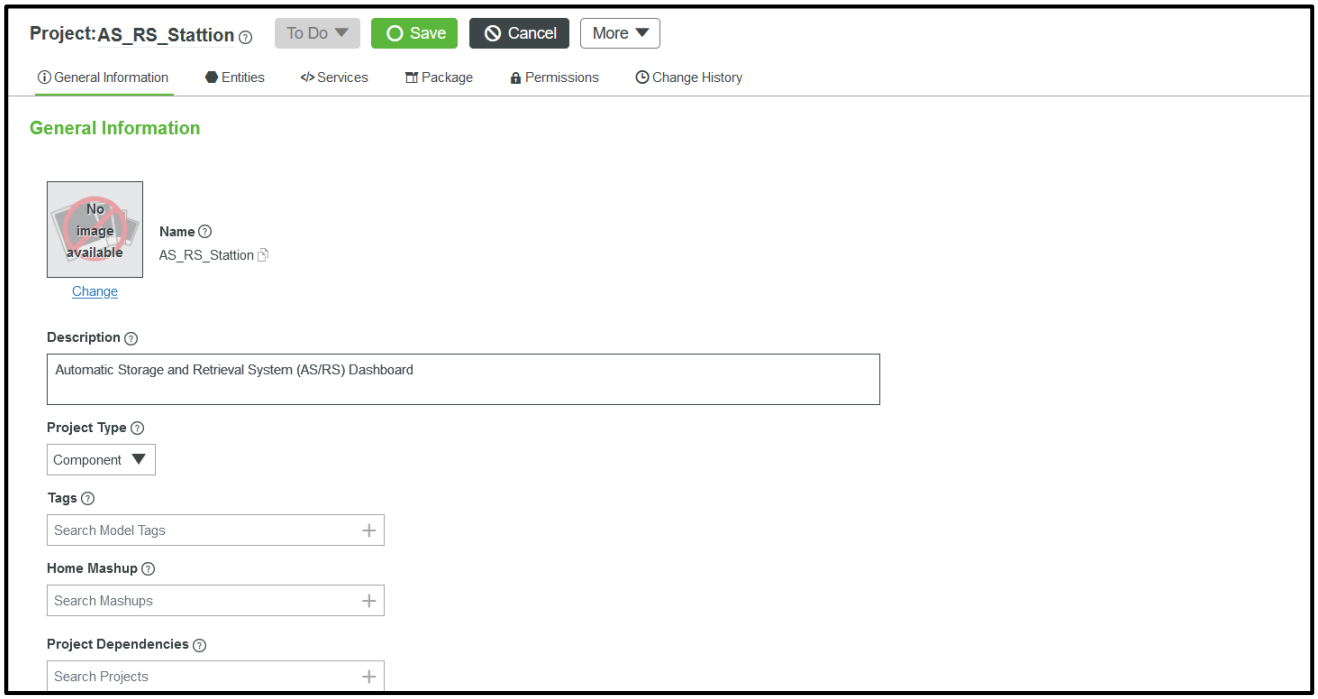
1. Start by creating a new project from the browse tab.



2. The new Project created should look like this.



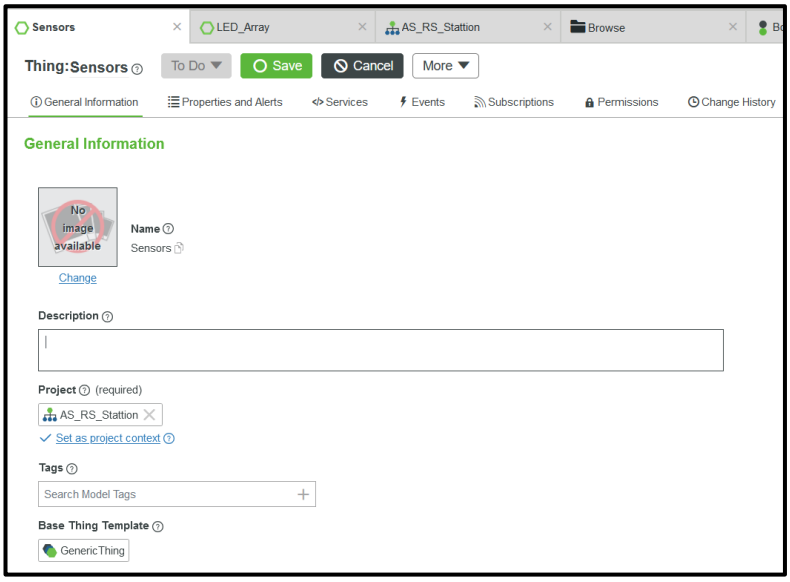

3. Now, we need to add things to the project.

**Things:** It represents physical devices, assets, products, systems, people, processes or service.

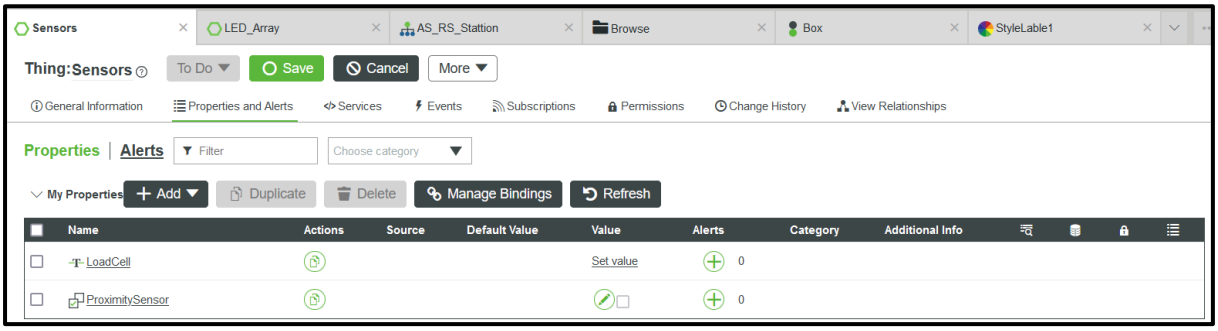
These will be the data which will be fetched from the kepware server.

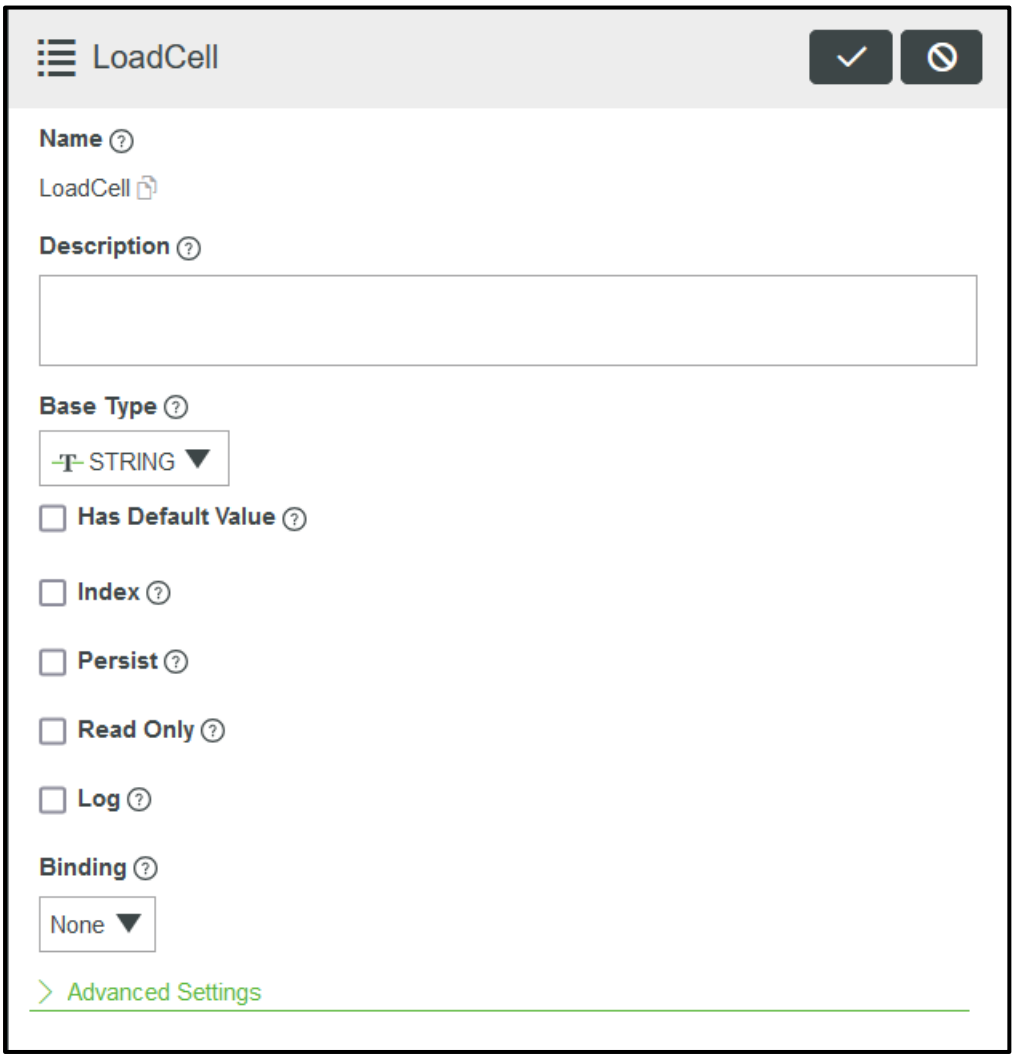
Create New Thing from the Browse sections.

We will be creating Two things here, one for LEDs (indicating the slabs) and other for other sensors such as load cell, proximity sensor.



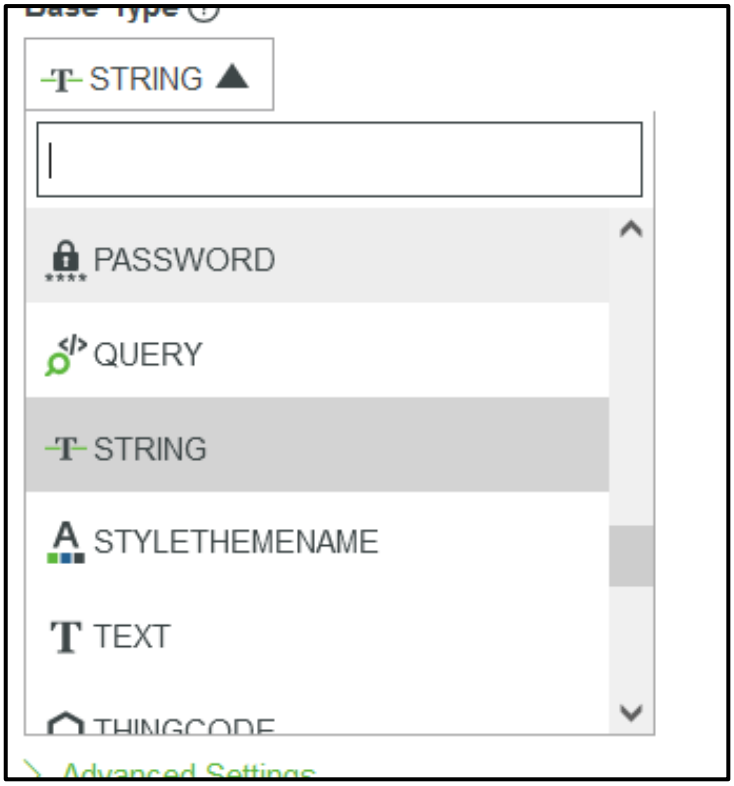
Add properties for each. This needs to be bind to the widgets we will be creating in further steps.

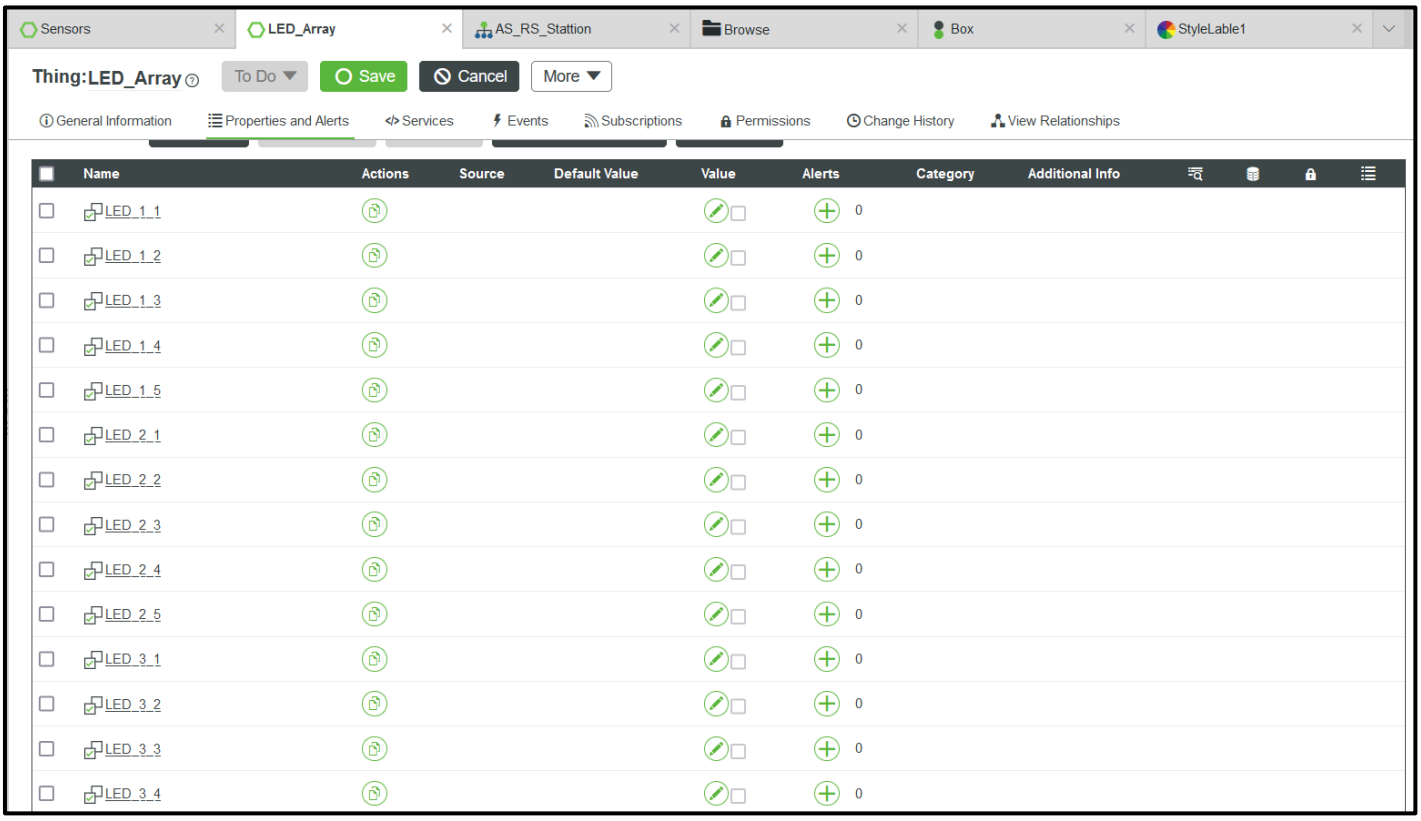



Properties such as LED have only two values, i.e. ON and OFF.

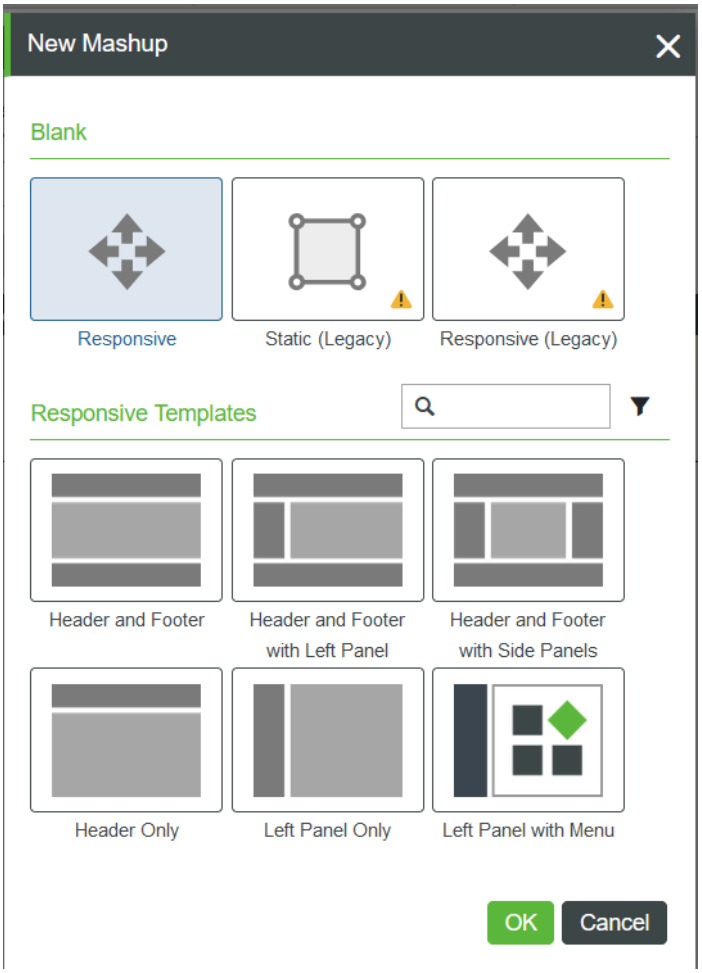
Choose appropriate base type for it according to the data received. For LED, we will be choosing Boolean.




4. Once Things are created, we can make a basic structure of the dashboard.

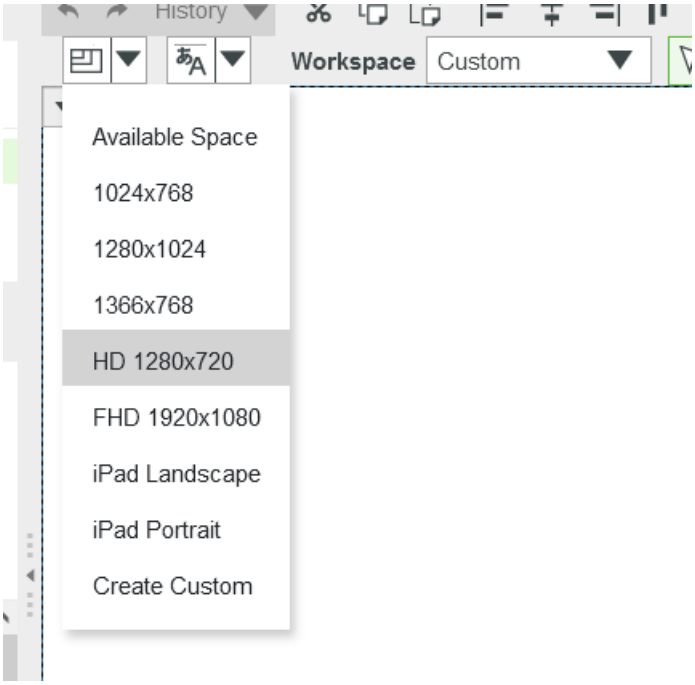
5. Choose mashup from browse tab under visualization section.

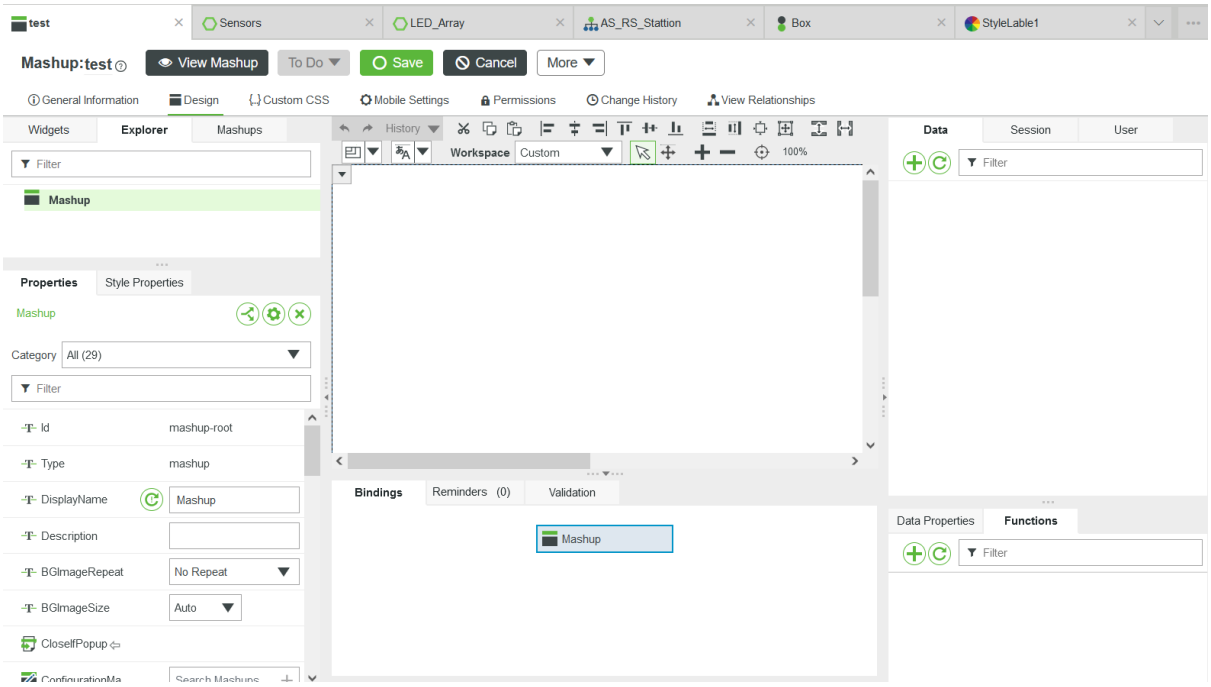



Choose Static(Legacy) template for easier positioning of widgets and shapes.

The mashup window should look like this.

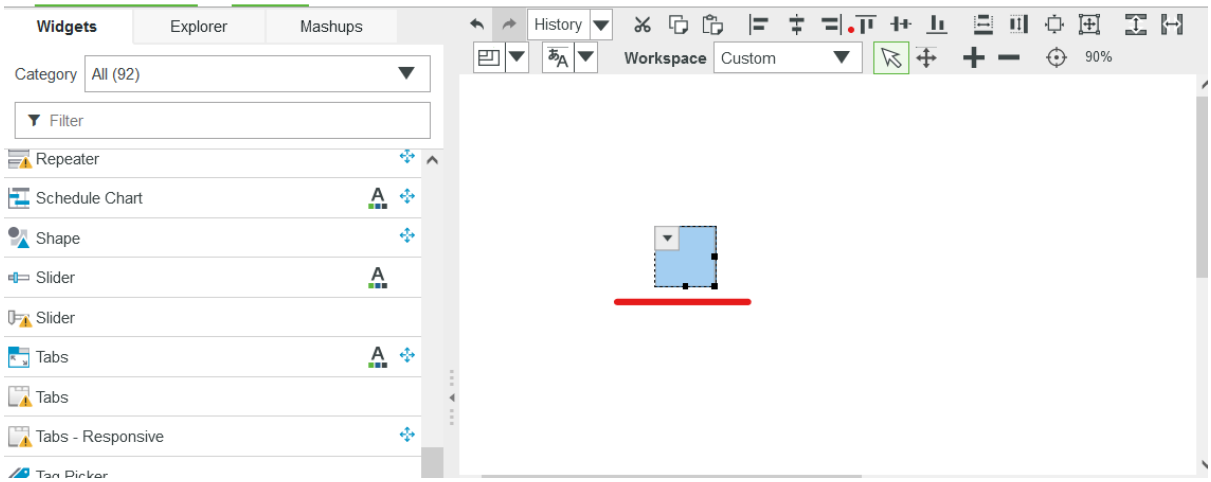
In Canvas Size, Choose HD 1280x720 or other size according to your preferences.



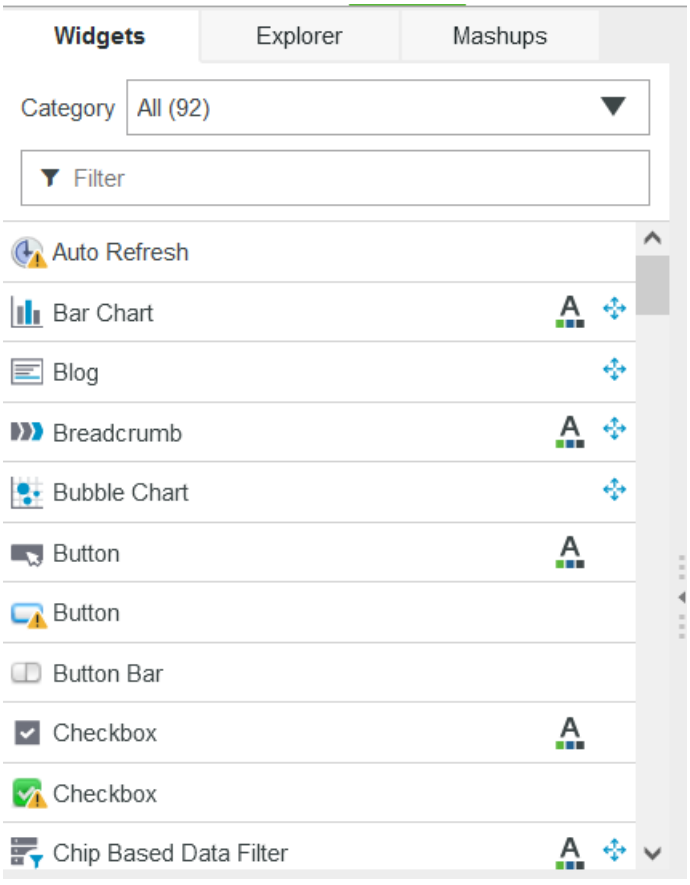



Start by adding widgets to the mashup. This will be used for showing values.

Start by adding a shape to the mashup. You can set it’s size based on the values.

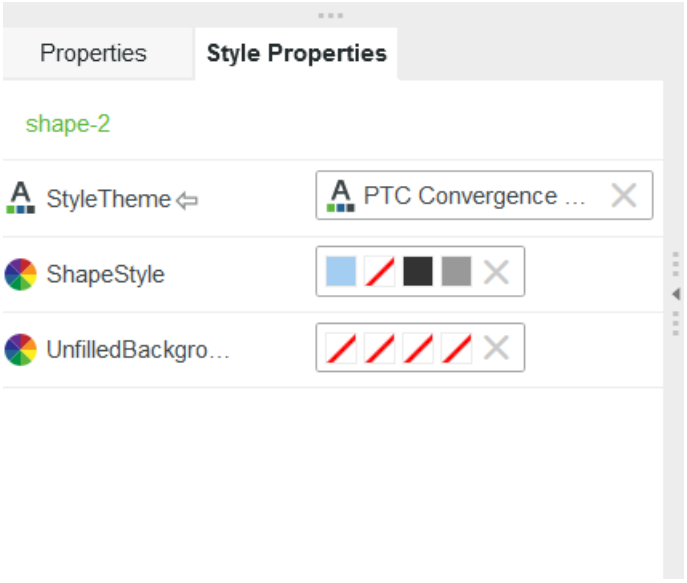



Mainly, Height, Width, Left and Top will be used. You can also use display name for reorganizing your shapes.

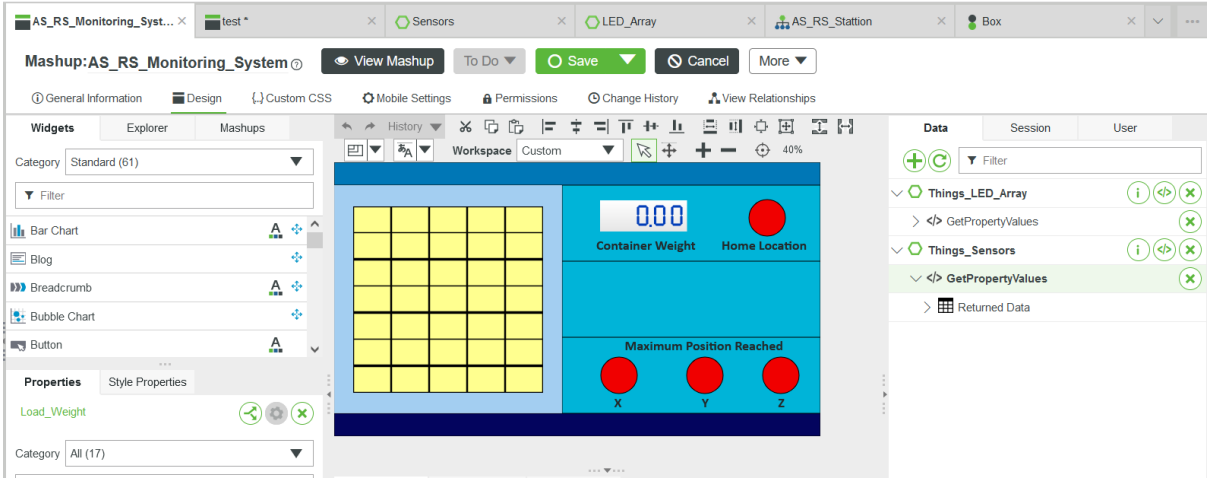


Use different widgets for shapes and text. For display text, you can use Labels.

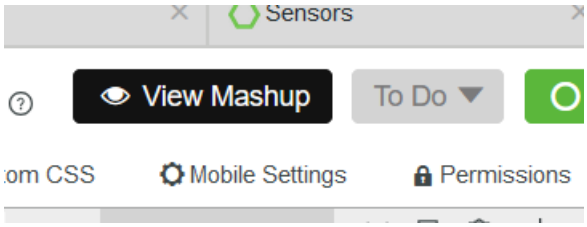
Style Properties tab is used to set color and different visual properties to the widgets added.

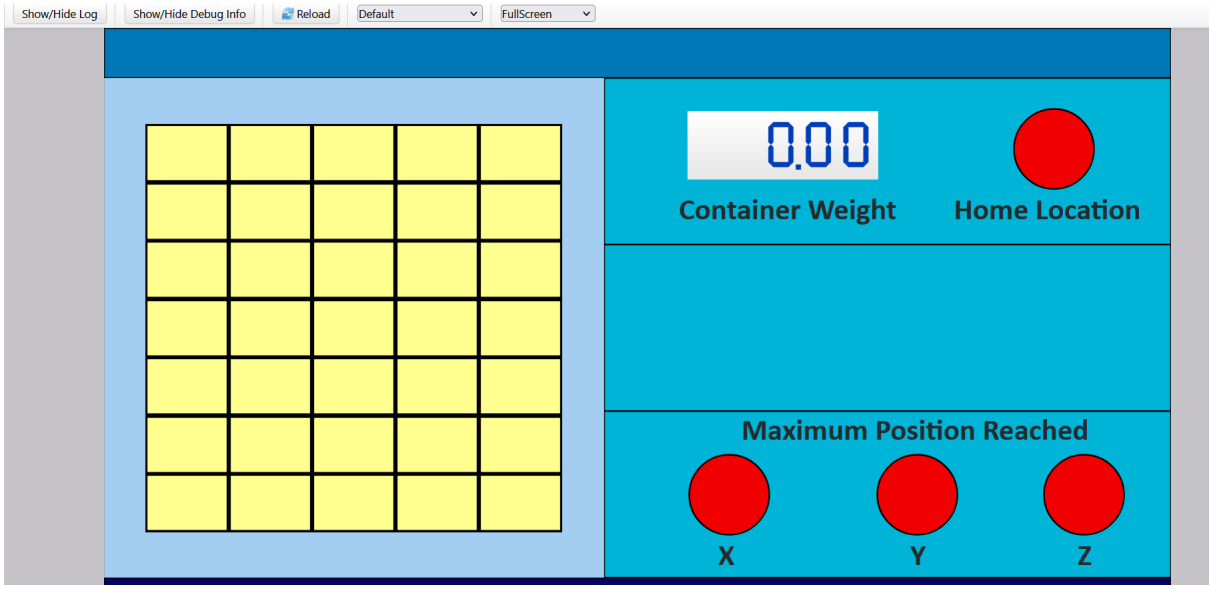



The final mashup should look like this after setting all shapes.



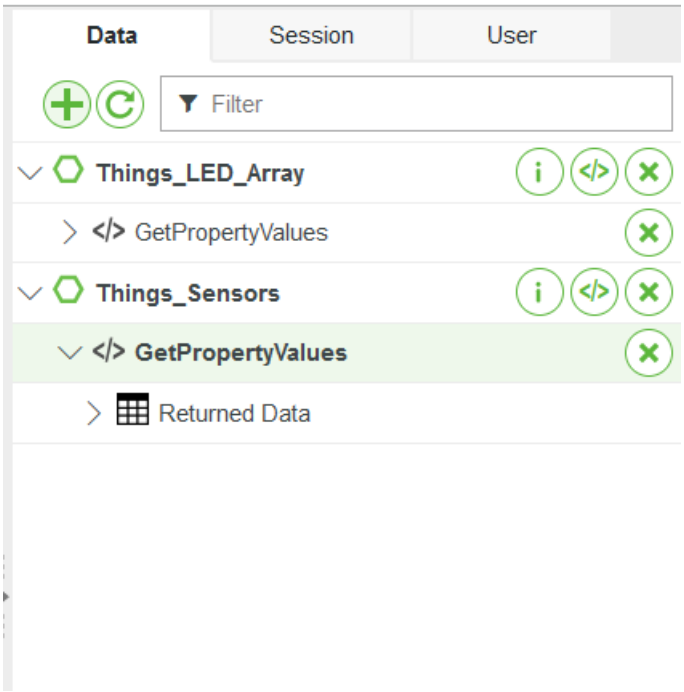

You can view your mashup in a new tab in working mode via ‘View Mashup’ Option.



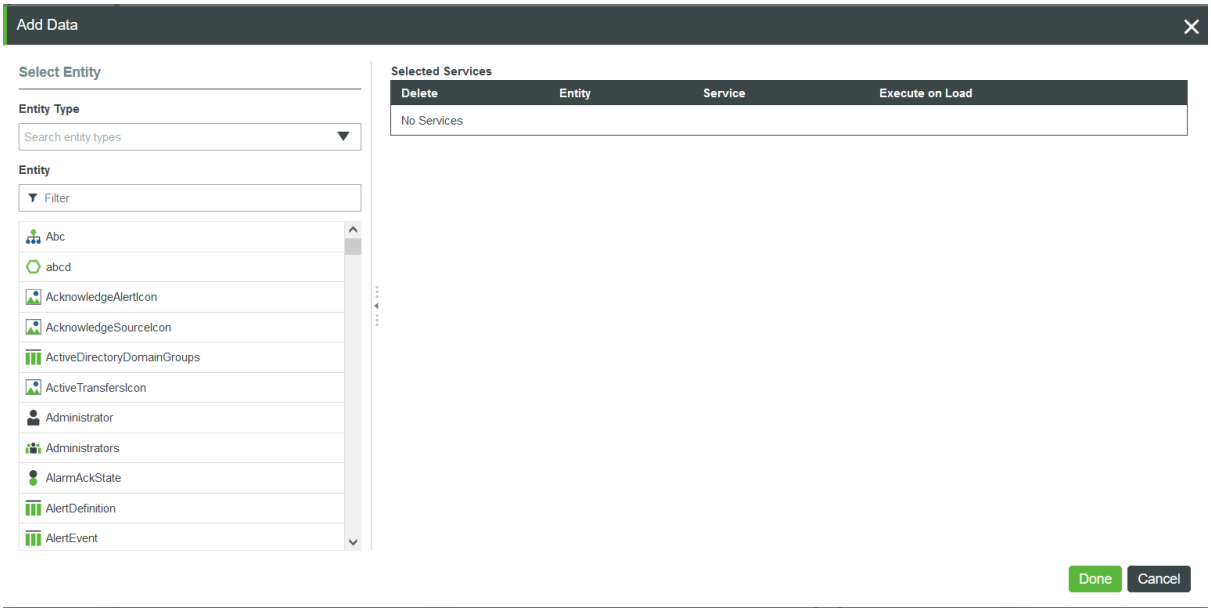



Note that we still have to bind data to these widgets as they need to reflect the values being fetched by the Kepware server.

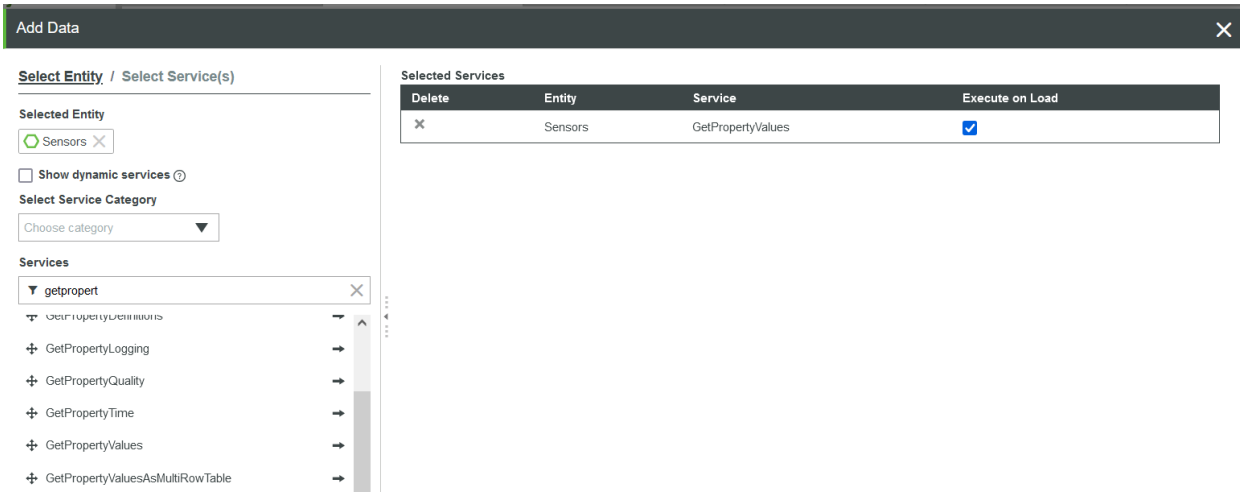
6. Binding of Data to widgets:

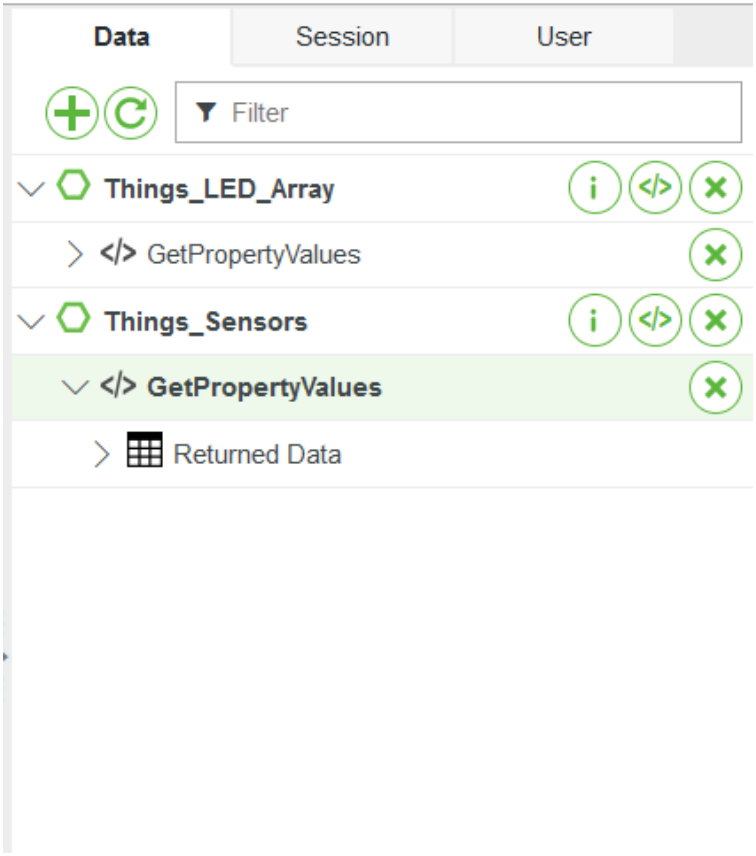



Choose the (+) option to add data. This will be needed to fetch things we had created in earlier option.

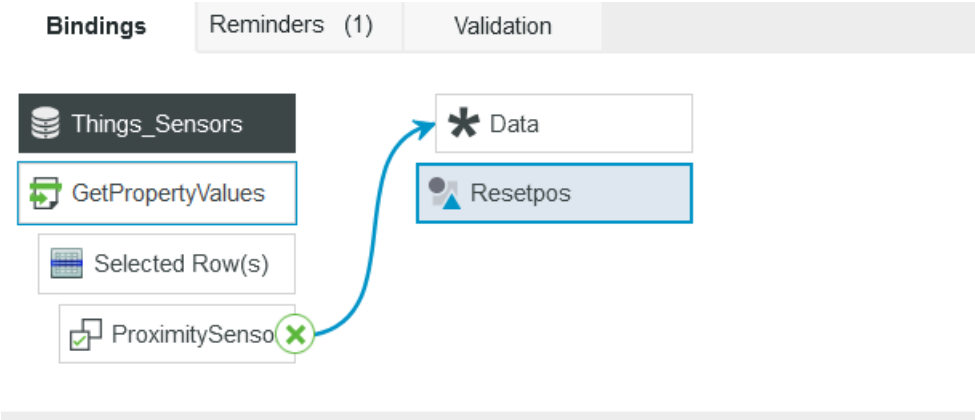



Choose the things you had created and select service as “GetPropertyValues”.






Drag the corresponding data to the widget to bind them together.




The binding tab should like this after adding proper value.

We have created The Mashup. Further it needs to be connected to Kepware server via application key.