

Integrate Legacy C code to Waijung 2 using s-function builder

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Objective

Enable user to create a Simulink block that can execute a custom C code.

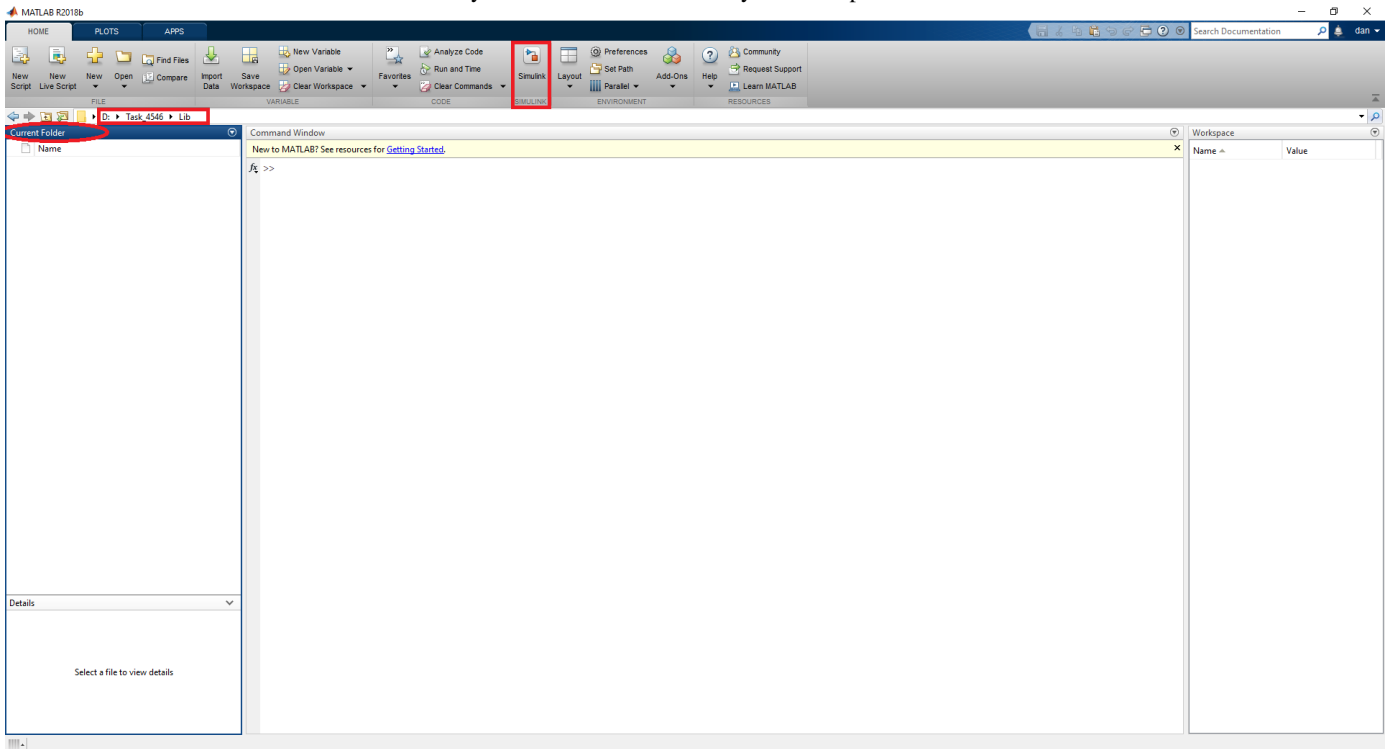
Example

Problem Statement

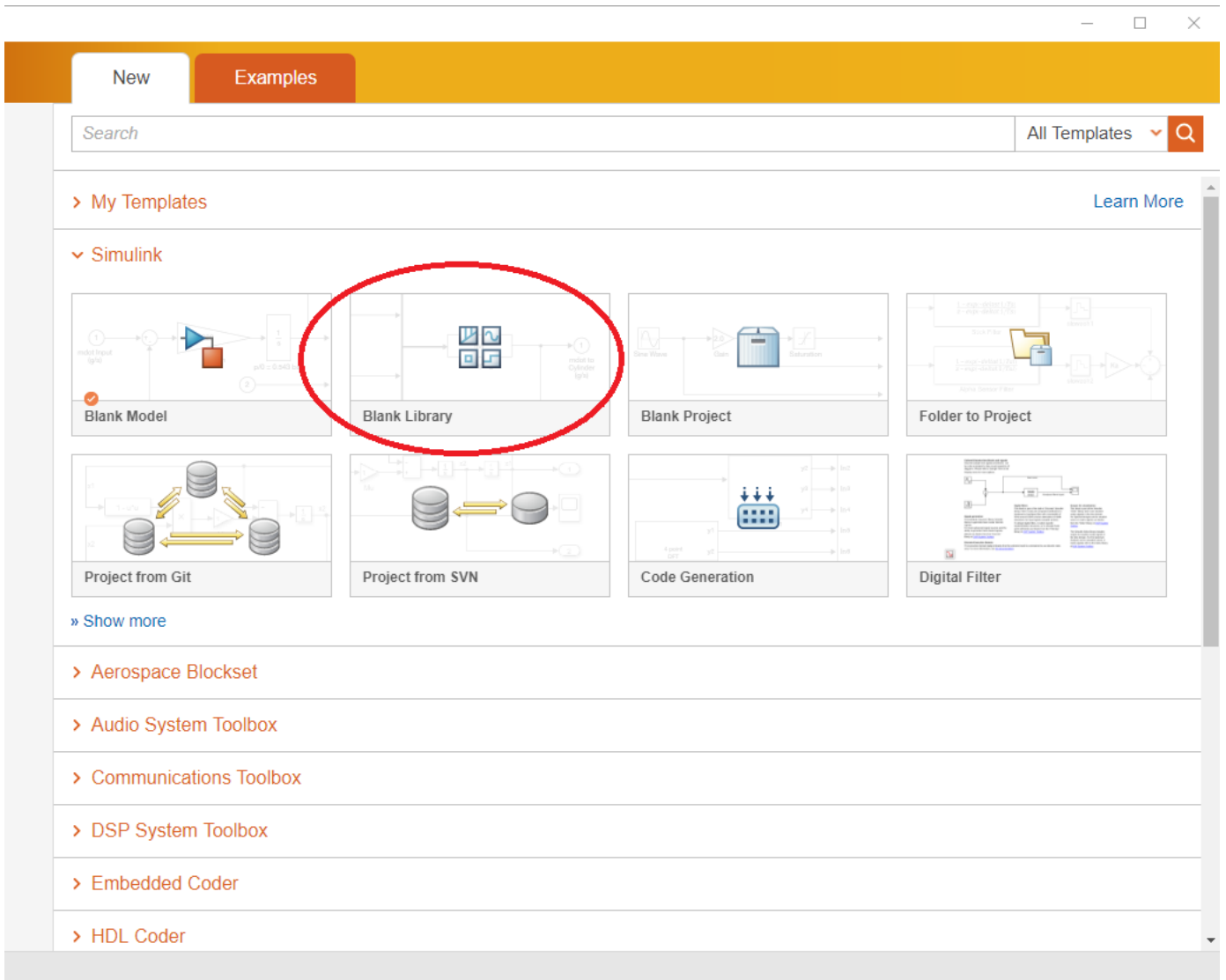
Create a Simulink block that would act as a conditional statement block to toggle an LED.

Steps to Create the Library File

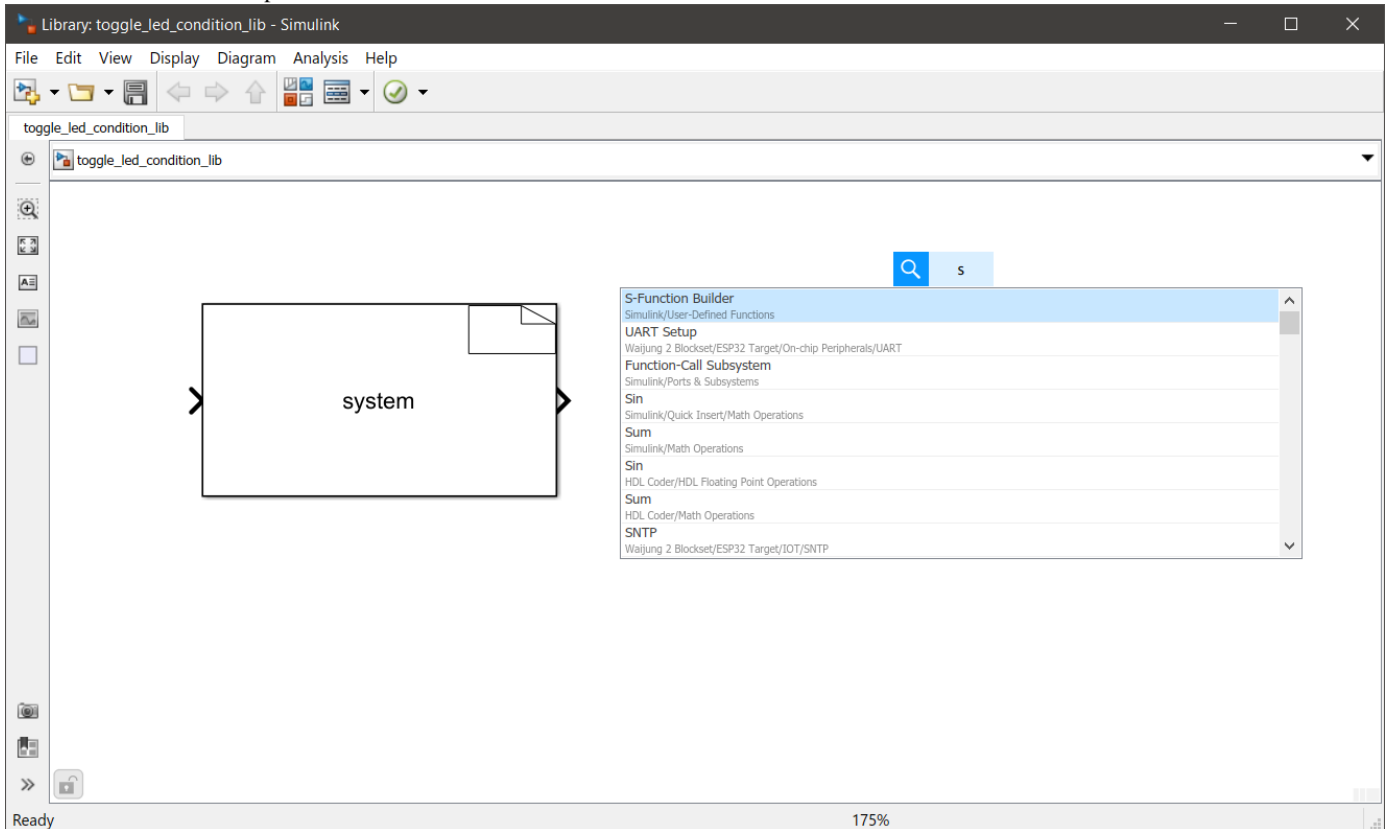
- Browse the current folder to the location which you want to create the library file and open Simulink.



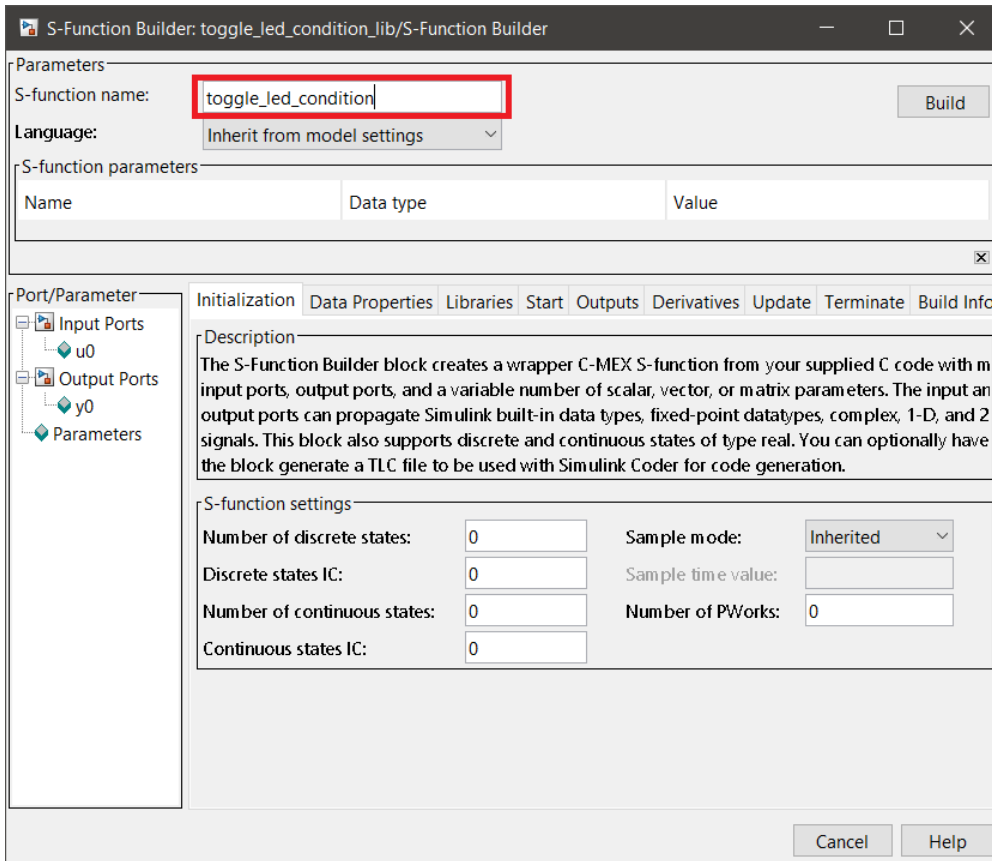
- Click 'Blank Model' and save it as: toggle_led_condition_lib.slx



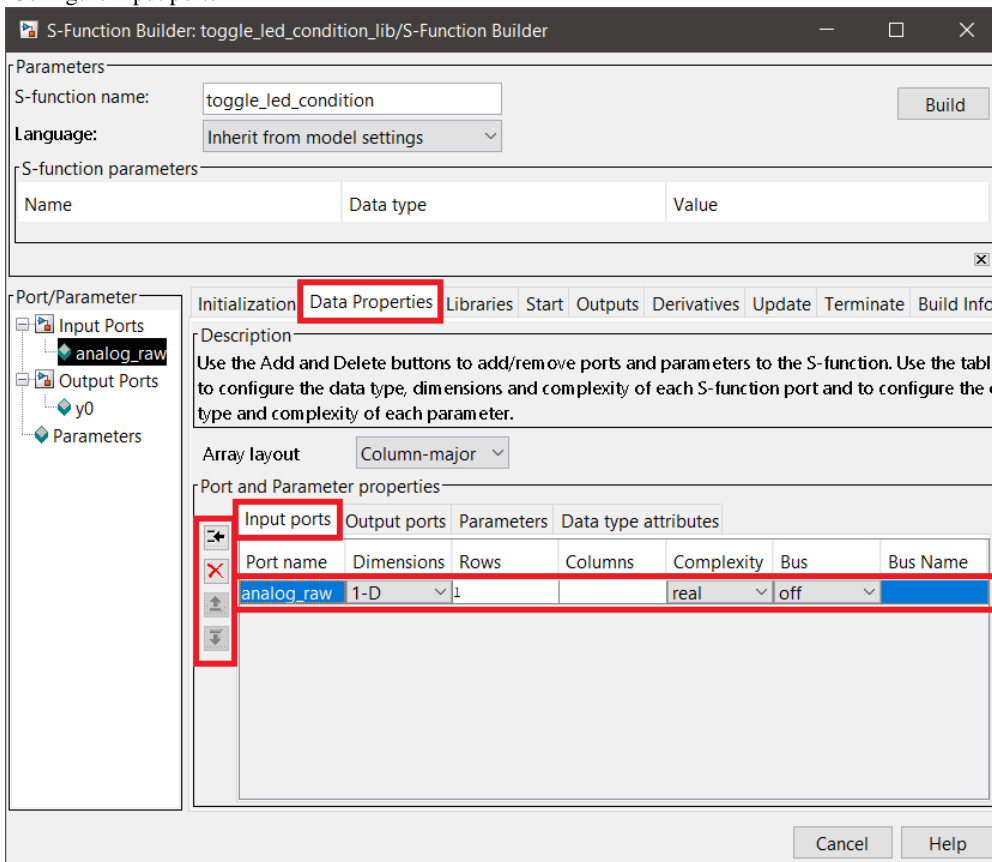
- Double click on the workspace and insert a 'S-Function Builder' block.



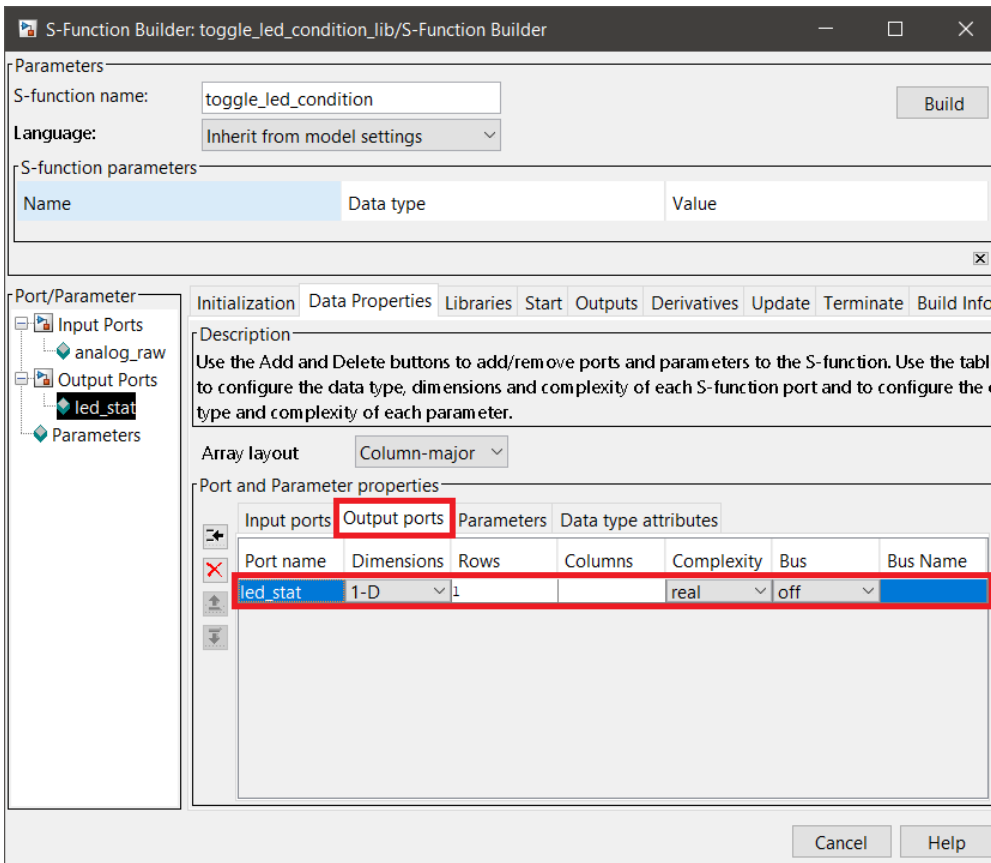
- Double click on the block and enter the S-Function name.



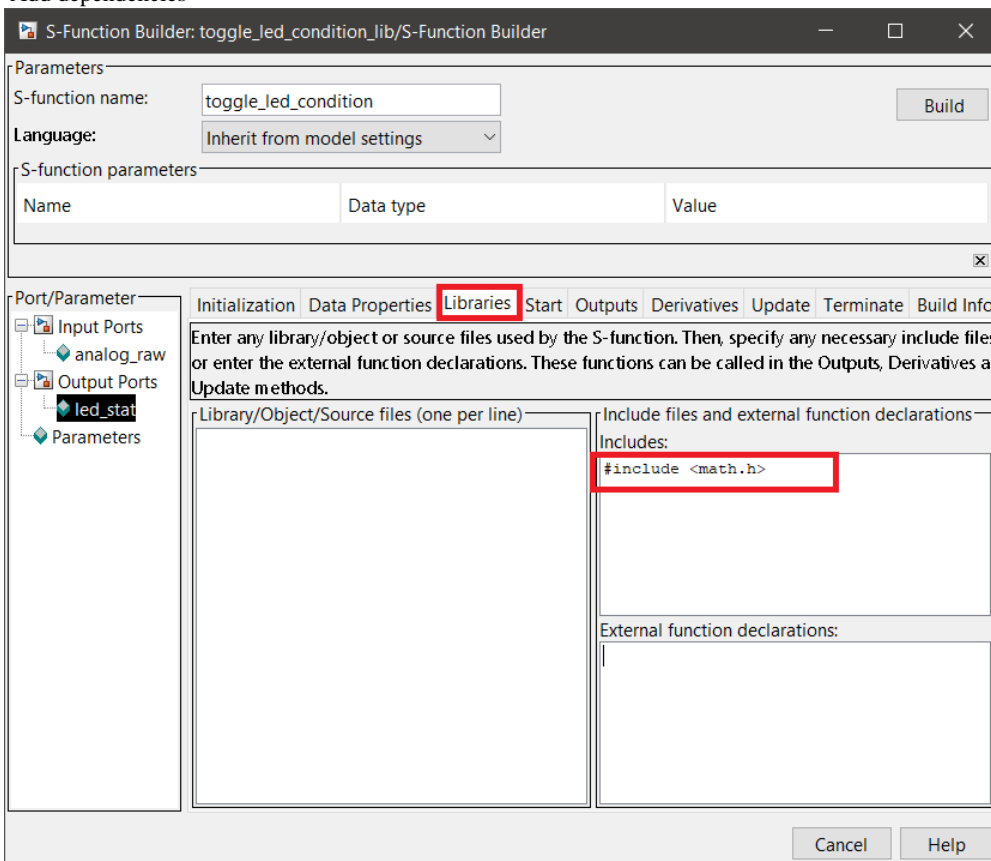
- Configure input ports



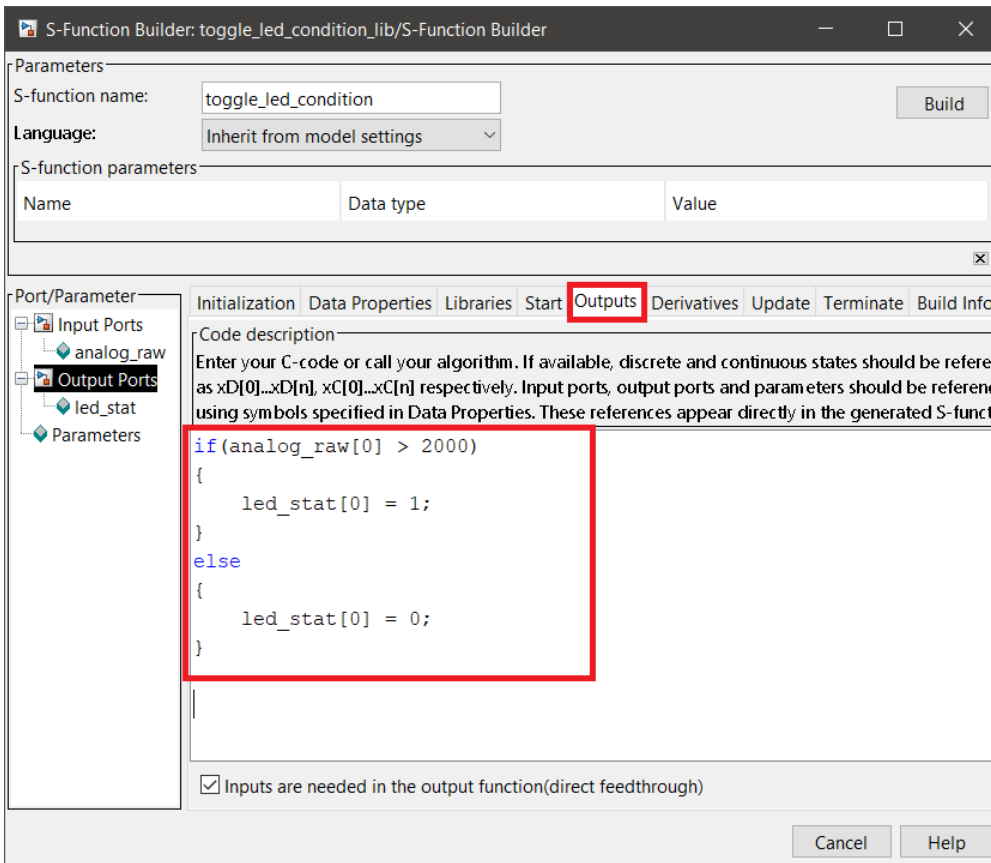
- Configure output ports



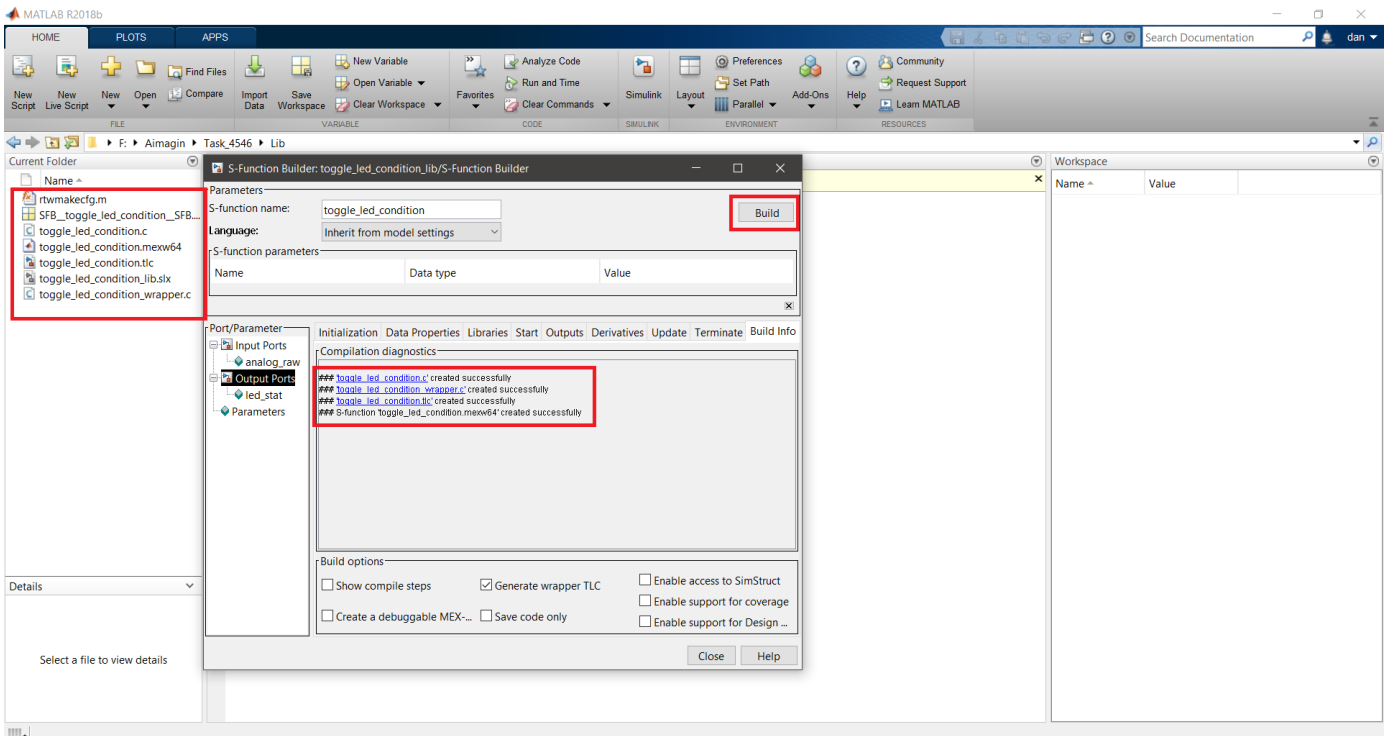
- Add dependencies



- Add the custom C code



- Click the 'build' button and it will create a few files in the 'Current Folder'.

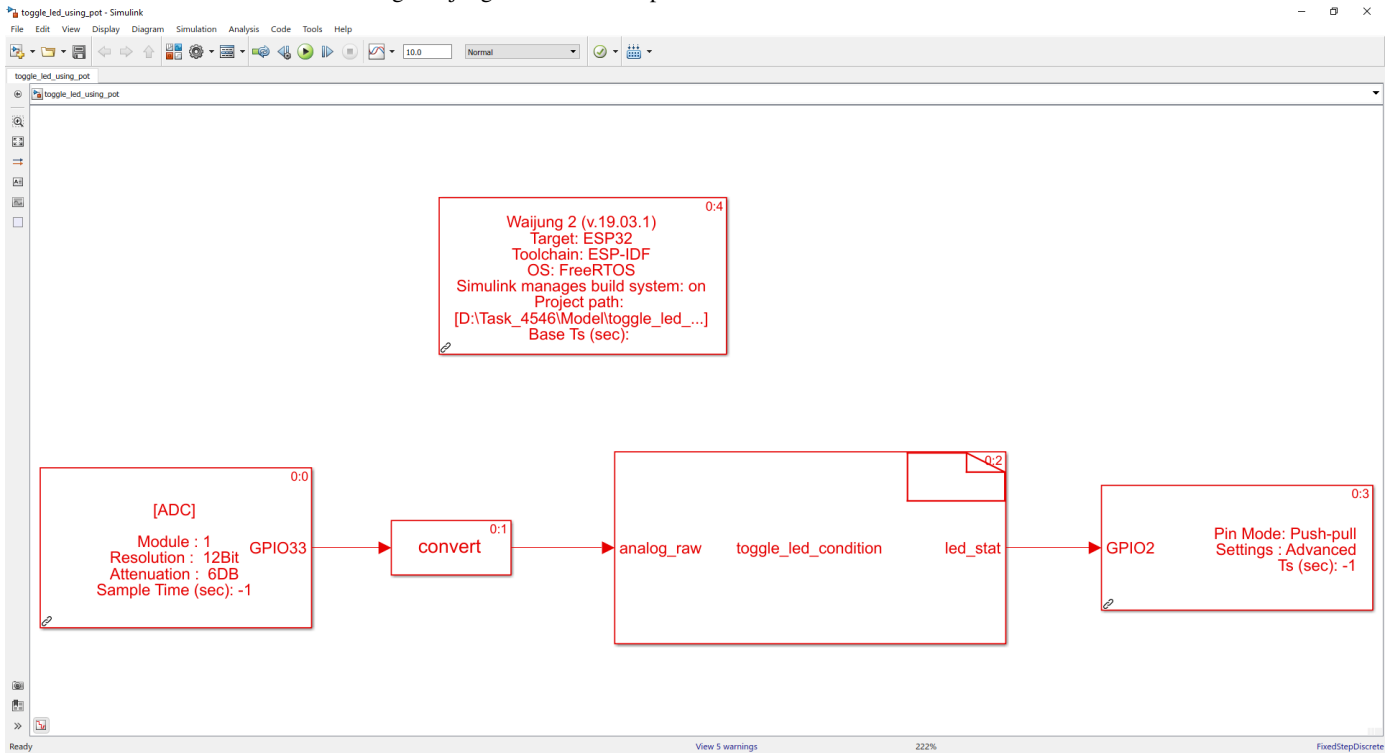


- Congratulations! you have successfully created your first custom block library.

Using the library block created

- Right click on the block and copy the library block to clipboard.
- Move the 'Current Folder' to a new location where you want to create the model file
- Open Simulink and click 'Blank Model'.

- Save the model file as 'toggle_led_using_pot.slx'.
- Create the model file shown below using Waijung2 blockset and upload the code to an ESP32.



Testing

Connect the potentiometer to the Analog Pin 33 and connect an LED to Digital Pin 2. Potentiometer should be connected in a way where the maximum input voltage is 3.3V and the minimum is 0V;

Result

LED will toggle On and Off depending on the potentiometer reading.

Demo files

[toggle_led_condition_lib.slx](#)

[toggle_led_using_pot.slx](#)

Previous : [Scheduling mechanism in Waijung 2](#)

Next : [Create embedded web application with Aimagin Connect](#)

Files

lib_step1.PNG	78.1 KB	20 Oct 2020	Vasitha Tilakumara (රාච්චි)
lib_step3.PNG	68.9 KB	20 Oct 2020	Vasitha Tilakumara (රාච්චි)
lib_step2.png	85.9 KB	20 Oct 2020	Vasitha Tilakumara (රාච්චි)
lib_step5.png	38.6 KB	20 Oct 2020	Vasitha Tilakumara (රාච්චි)
lib_step4.PNG	40.7 KB	20 Oct 2020	Vasitha Tilakumara (රාච්චි)
lib_step6.png	38.8 KB	20 Oct 2020	Vasitha Tilakumara (රාච්චි)
lib_step7.png	36.1 KB	20 Oct 2020	Vasitha Tilakumara (රාච්චි)
lib_step8.png	37 KB	20 Oct 2020	Vasitha Tilakumara (රාච්චි)
lib_step9.png	153 KB	20 Oct 2020	Vasitha Tilakumara (රාච්චි)
toggle_led_condition_lib.slx	19.2 KB	20 Oct 2020	Vasitha Tilakumara (රාච්චි)
model_step1.PNG	110 KB	20 Oct 2020	Vasitha Tilakumara (රාච්චි)
toggle_led_using_pot.slx	24.5 KB	20 Oct 2020	Vasitha Tilakumara (රාච්චි)