**SDLC --> MULTI-CHANNEL ADC**

**SUBMISSION A**

**LINKS REFERRED:**

* <https://resources.pcb.cadence.com/blog/multiple-adcs-or-multichannel-adcs>
* <https://www.geeksforgeeks.org/analog-to-digital-conversion/>
* [https://www.arrow.com/en/research-and-events/articles/engineering-resource-basics-of-analog-to-digital-converters#:~:text=ADCs%20follow%20a%20sequence%20when,its%20sampling%20rate%20and%20resolution](https://www.arrow.com/en/research-and-events/articles/engineering-resource-basics-of-analog-to-digital-converters).
* <https://www.arrow.com/en/research-and-events/articles/analog-to-digital-adc-converter-types-and-basic-functions>

**PROBLEM 1:**

OBJECTIVE: Build a software model for multi-channel ADC. This model is used in building the GUI.

QUESTIONS:

* The LabVIEW driver which is provided will do only read operation?
* It is said that the model which is created will be replaced with the driver provided. Will it be completely replaced, or will a part of its functionality be included?
* Will the data be generated continuously in the model?
* What are the different ADCs? Will the list be provided?
* ADC types are defined by the number of bits or what will be the consideration?
* What is the datum that will be present in the 1-D array that is returned by the driver?
* What are the contents to be loaded in the INI file?
* Given for example channel1 word1, what is word1, what is its data/datatype?

**PROBLEM 2:**

OBJECTIVE: To build a GUI that plots the data.

QUESTIONS:

* When a particular channel is selected will the data acquired by the other channels be stopped?
* Which particular parameter is to be plotted (formula added below in assumptions)?
* The data is to be stored in a particular location, should that file be csv or any other?
* Only if the user selects a path and gives ok then the data should start logging or logging must take place continuously?
* Should both analog and digital data result be plotted in graph?

**ASSUMPTIONS:**

* The data is generated as random numbers in a separate VI.
* This set is passed to the model where the analog data is converted into digital.
* **Digital Output = [Analog input voltage \* (2^n – 1)]/Reference voltage**
* The above will be the output from this model.
* This output is then passed to the GUI and the data gets plotted.
* The ADC can be chosen in the GUI, particular channel can be chosen, and the data displayed can be started or stopped with a button.
* The data is also stored in a desired location.



The above block is the assumption of the files to be created.

**QUESTION:**

The driver provided is said to provide real time data. So will the driver be replaced with the random number generating VI or the ADC conversion model.

*These are the few questions and the assumptions that I came up with the given problem statement.*

*If the questions are unclear, then we can have a meeting to get a clear picture of the problem.*

**Thanks**

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**Int-041.**