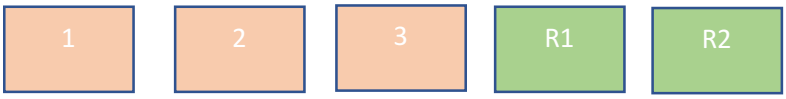
Projects

Project 1 - Capillary identification

The production includes a calibration process in which devices are calibrated against references. The references are devices that have been calibrated already against Microscope (which is the golden standard).



The schematic show three devices that need to be calibrated and two references.

The calibration processes can be described simply in the following steps

- A capillary (plastic container with known material) is inserted into a device and a test is performed
- The results for the test (for the specific device) are written manually
- The same capillary is inserted to the following device and a test is performed
- In the same way, the results are written and collected for all devices
- This process continues with the same capillary and include the references as well
- For each device the results are compared to the references results and if needed the calibration parameters are adjusted to bring the reading of the device to be the same as the references

<u>The requirement</u>

Since the process include many capillaries that are tested in parallel it is difficult to follow up which capillary was run already and in which device.

- It is required to develop a solution that allow tracking the capillaries that inserted in each device
- When a capillary is inserted into a device, an identification mechanism should sent the info to the PC
- When a test is completed in a specific device with a specific capillary the results should be sent to the PC
- The PC should present always a table/grid with all the measurements while each row represents different capillary. The table below show an example of the data that is collected,

	Reference 1	**Reference 2**	**Device 1**	**Device 2**	**Device 3**
Capillary 1	20	23	14	12	26
Capillary 2	42	44		23	48
Capillary 3	48		---		
…					

<u>Optional solution (just an example)</u>

<u>Option 1:</u> Each capillary will be marked with barcode label before it is used and there will be a barcode reader that is attached to every device during the calibration. The capillary should be scan in each device before using it,

<u>Option 2:</u> Each capillary will be marked with an RF low cost component which will transmit to the PC the Capillary ID each time a capillary is used in a device

Other options are welcome as well

Communication with the device

To read the test results the PC should communicate with the device.

The communication with the device is done using RS232 protocol. However, a dedicated module will be written for this process. The module will handle the communication with the device and will send only the relevant parameters each time a test is completed. The results will be sent along with the serial # of the device.