Automation of electric acquisition for the new experimental setup

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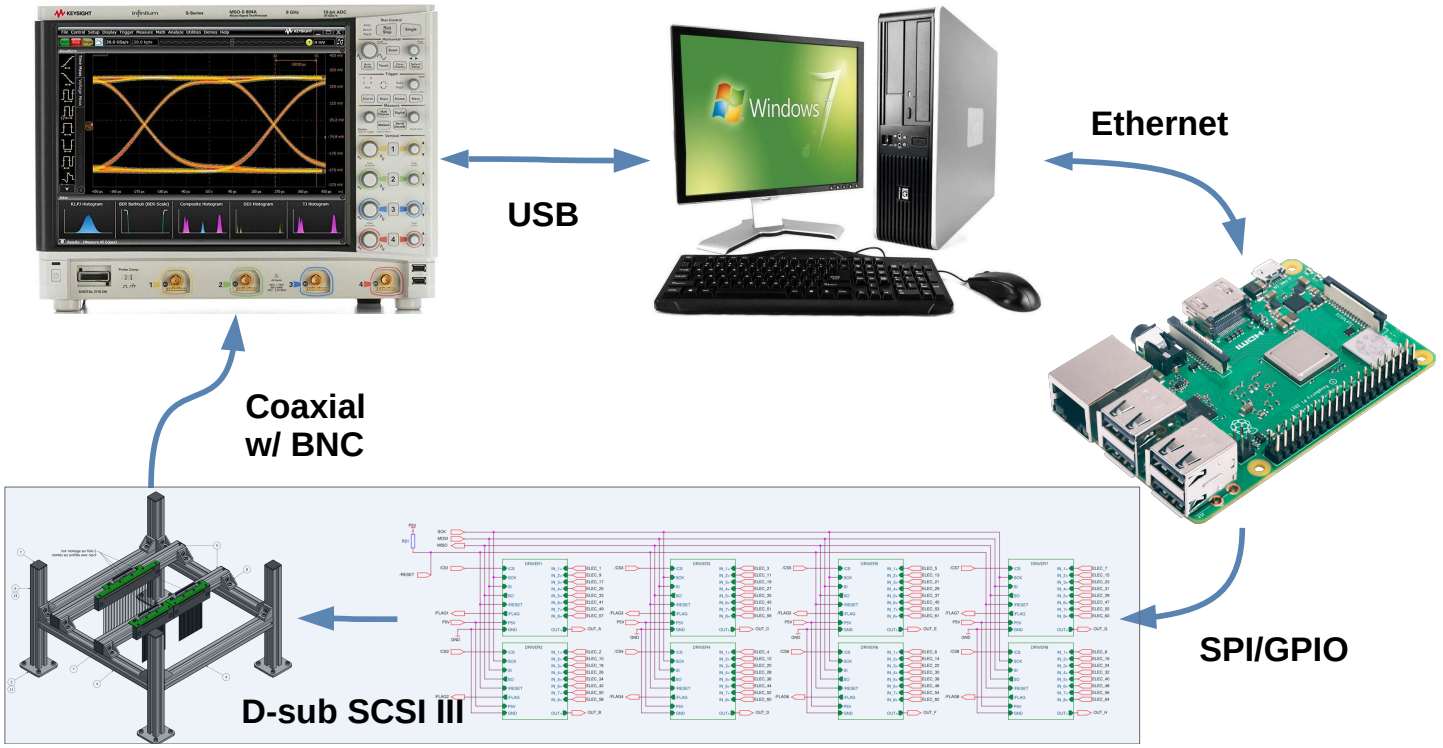
Automation – general view

Schema



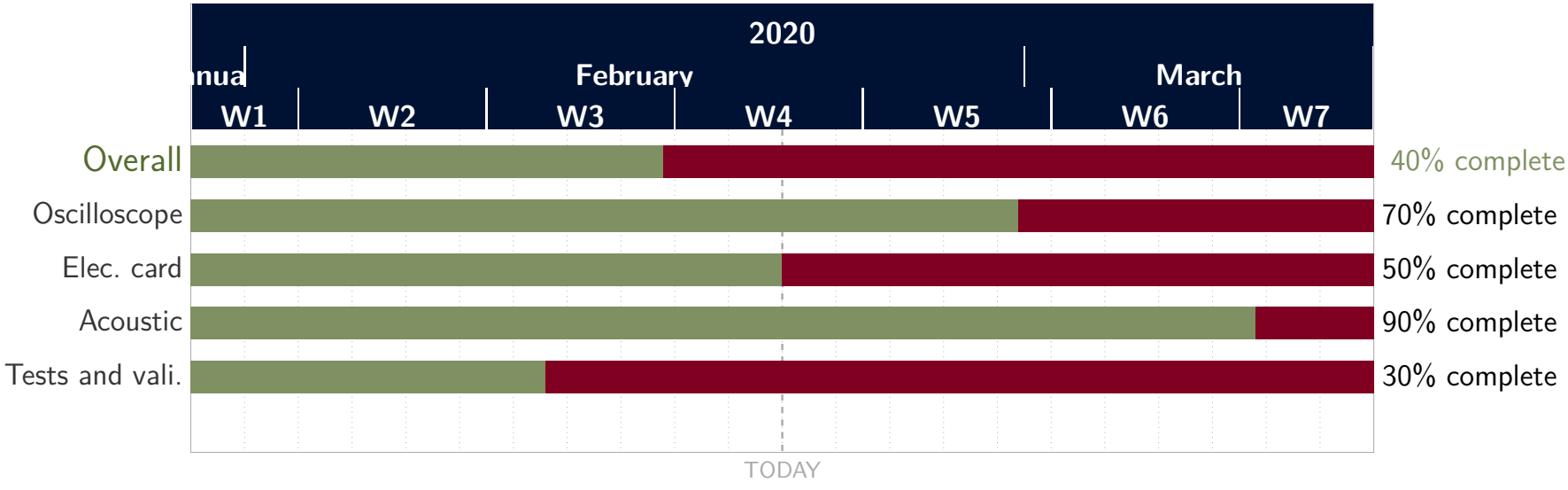
Automation – general view

Main points

- Python-based routines and interface to control the electric acquisition
- Quicker and simpler acquisition
- Less human interaction
- Towards reproductibility

Automation Planning

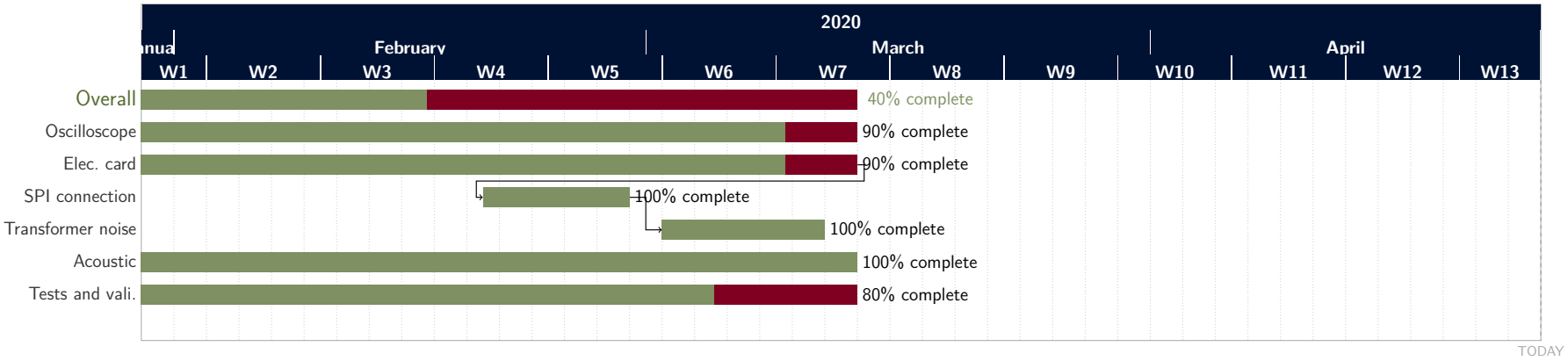
From : 2020-01-30 until 2020-03-13



- **Proposed at 2020-02-20**

Automation Planning

Today



Automation Planning

Points :

- Oscilloscope connection has no easy-to-use user interface. Possibility of bugs I have not yet seen.
- Control over GPIO pins works but SPI is not quite clear.
  - The right cable config.
  - What 8-bit message do I send to change drivers/relays.
- Oscilloscope control could be done with LabView to make it easier.

Tests to be performed

- Check if all relays work properly - DONE
- Test box attenuation/plastic velocity/etc ONGOING
- Water-filled box with dipole source to check electrodes' beahviour to electromagnetic sources
- Sand-filled box
- Sensitivity to the Layer response

Perspectives to new experimentl setup

General :

1. Greater SNR;
2. Faster acquisition
3. Greater spatial precision of electric measurements due to more rigid electrodes;
4. Ensure repeatability;
5. More precision when studying the converted wave.

Thank you for your attention!