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ITASDI PROJECT

Innovative Teaching Approaches in development of Software Designed Instrumentation and its application in real-time systems

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Course „Advanced LabVIEW Applications“

Laboratory no. 8 - Creating documentation, managment ang error logging.

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1 Detector Controller

1.1 Goal

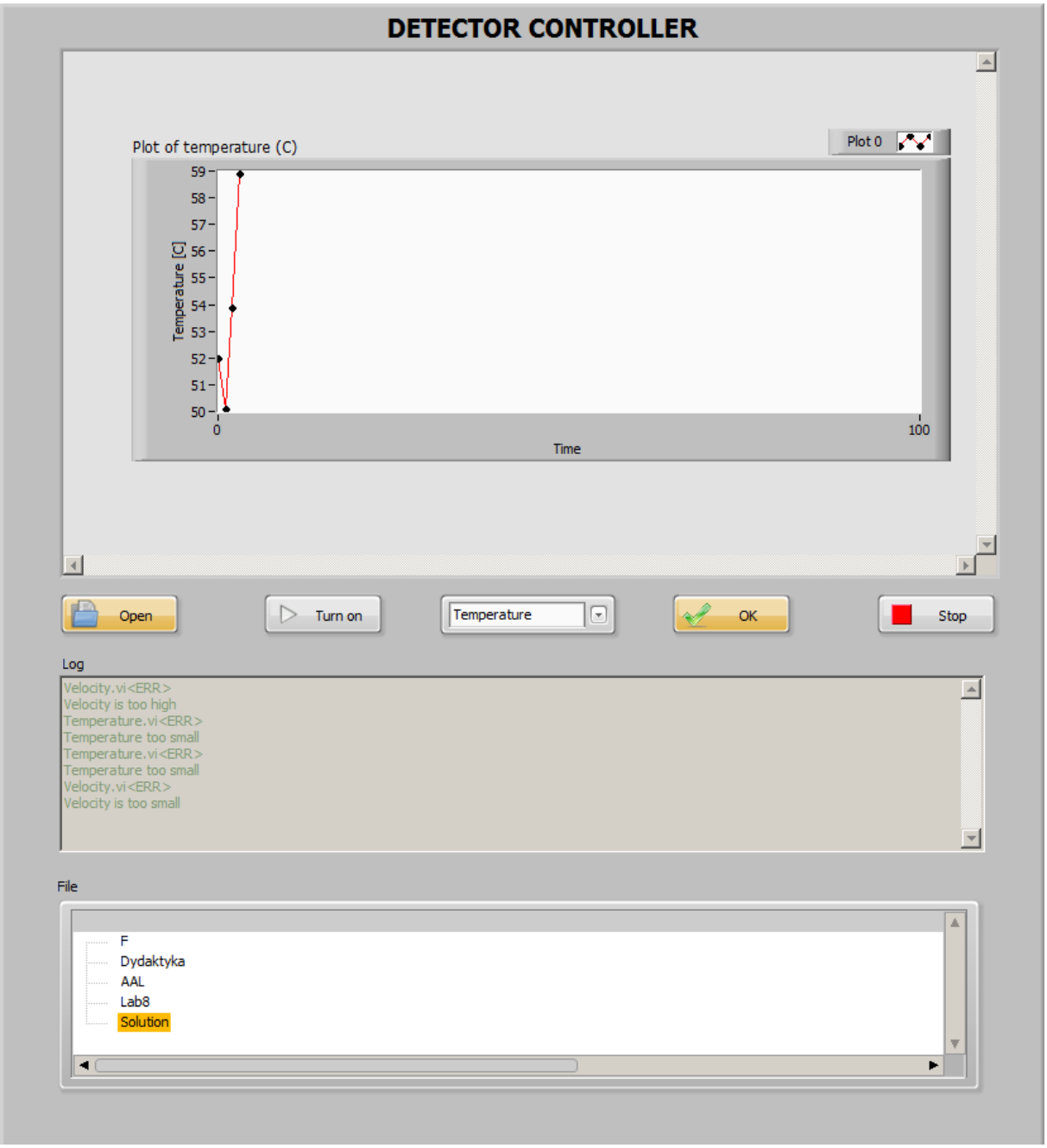
Create an application, which will simulate a monitor to control the detector work.

1.2 General requirements

- The application should be hierarchical and scalable. Remember to use subVIs.
- Choose appropriate design pattern.
- Avoid using the local, global or shared variables.
- Close all opened references and handles.
- Application shouldn't crash. Inform the user about the errors using the error cluster or a dialog box.
- **Remember to prepare well documented code. Especially remember about: labels on long wires, description showing in context help, tip strips of controls and labels of constant values.**
- **All subVI should have intuitive icon and description, which will be shown in contex help.**

1.3 Description

- Front panel contains:
  - subpanel, in which front panel of chosen subVI should be displayed,
  - *Open* button - which is used to create *log.txt* file in chosen directory from *File* control. The button control should be operated by mouse and **F1** button pressed on the keyboard.
  - *Turn on* - which is used to start measuring the temperature and velocity. The button control should be operated by mouse and **F2** button pressed on the keyboard.
  - *Option* control - which is used to specify, which subVI should be displayed in subpanel.
  - *OK* button - which is used to confirm the chosen string. The button should be operated by mouse and **F3** button pressed on the keyboard.
  - *Stop* button - which is used to stop application working. The button should be operated by mouse and **ESC** button pressed on the keyboard.
  - *Log* control in which the error descriptions are shown. The color of text should be green, when application works without errors and red when errors occure.
  - *File* constrol is a tree, which displays the hierarchical localization of the running application. User can specify, where the log file should be saved e.g. in actual directory or one folder higher.



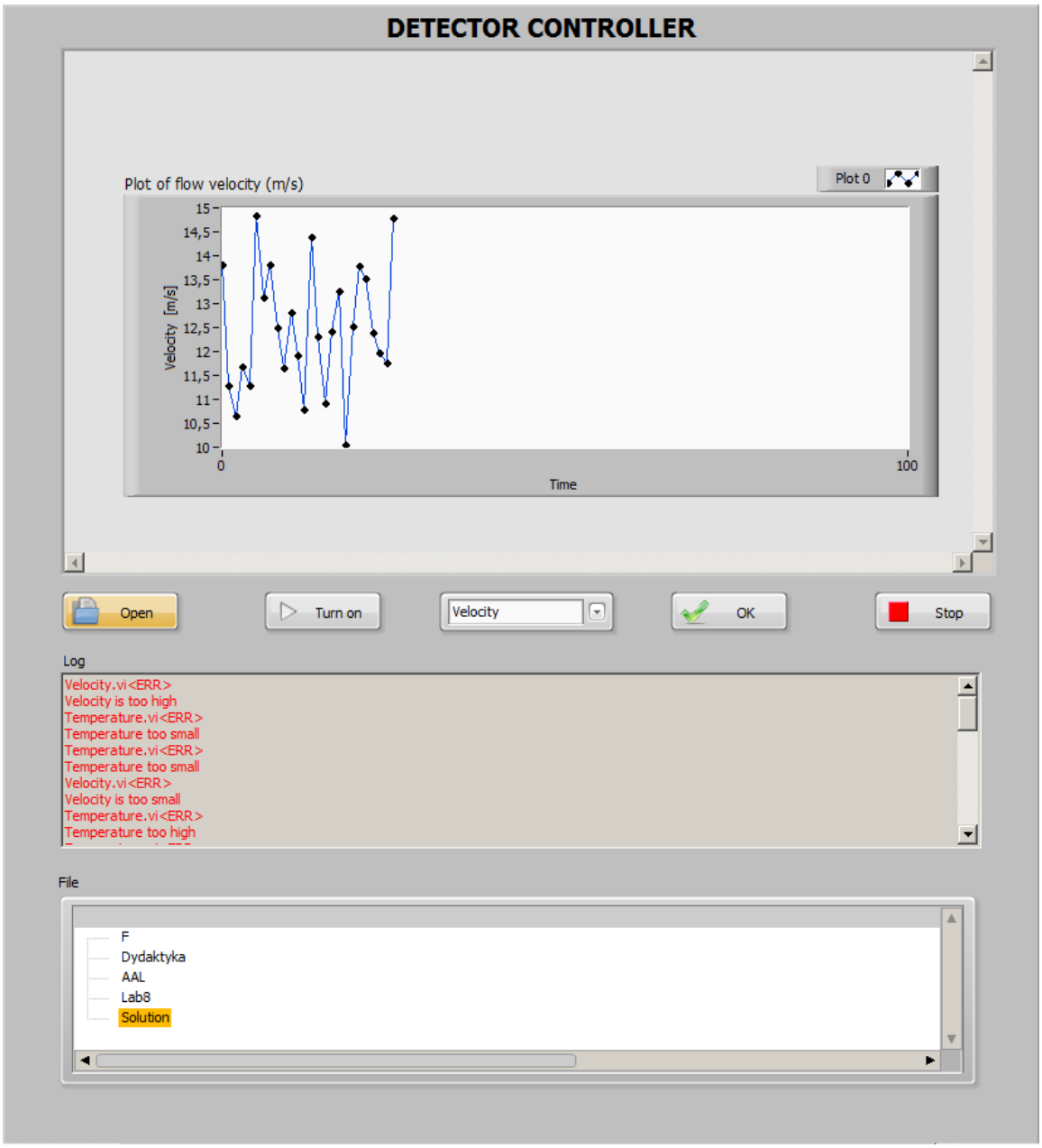
Rysunek 1: The *front panel* of Detector Controller.

1.4 Realization

- Create two subVIs: *Temperature.vi* and *Velocity.vi*.
- *Temperature.vi* will read temperature from sensor. For simulation the value should be generated randomly from range (55,65)^oC. If the temperature will be lower than 57^oC, then the error should occure. If temperature will be higher than 63^oC, then the error should also occure.
- *Velocity.vi* will simulate reading of the gas velocity by detector from the gas flow sensor. The value should be generated randomly from range (10,20)m/s. If gas velocity will be lower than 12m/s,

then the error should occure. If the gas velocity will be higher than 18m/s, then the error should occure.

- The log file should store the data in following way: a text line with date, time, error code and error source.



Rysunek 2: The sample output of Detector Controler.

Please use the front panel from public folder.