Car dashboards calibration and inspection
Master in electronic and computer engineering

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BACKGROUND

The use of displays as UI (User Interface) is increasing in number, due to the increasing products diversity integrating components with processing and connectivity features, and in dimension, because more than an information output they are also an input to request features or a multimedia connection point. This new reality it's also true for cars. In a development context of new car products, visual and cosmetic parameters gained relevance and must be evaluated and validated during prototypes construction.

OBJECTIVES

Development of a computer vision module to integrate with existing tools used during the samples building in the development phase of new products, providing this setup with features to perform displays and backlighted symbols validation and adjustment reporting results to the same report document as it does for a large range of other electrical measures.

METHODOLOGY

Once is intended that this application, as other tools used in the setup around, is low cost and without the use of licenses, so that each user can also be a developer, we decided to use an open source library (OpenCV or EMGU, depending on trials results) and a camera and lens whose technical characteristics don't compromise the image processing features.

The application to develop within this project will implement image processing features that can be invoked through a test sequencer in order to adjust and validate image related issues The use of the processing image features, implemented in this application using a .NET framework language, through the test sequencer, developed in the organization where this project is being developed in native C ++, requires the implementation of a specific interface in this sequencer to make the link between these managed and unmanaged languages.
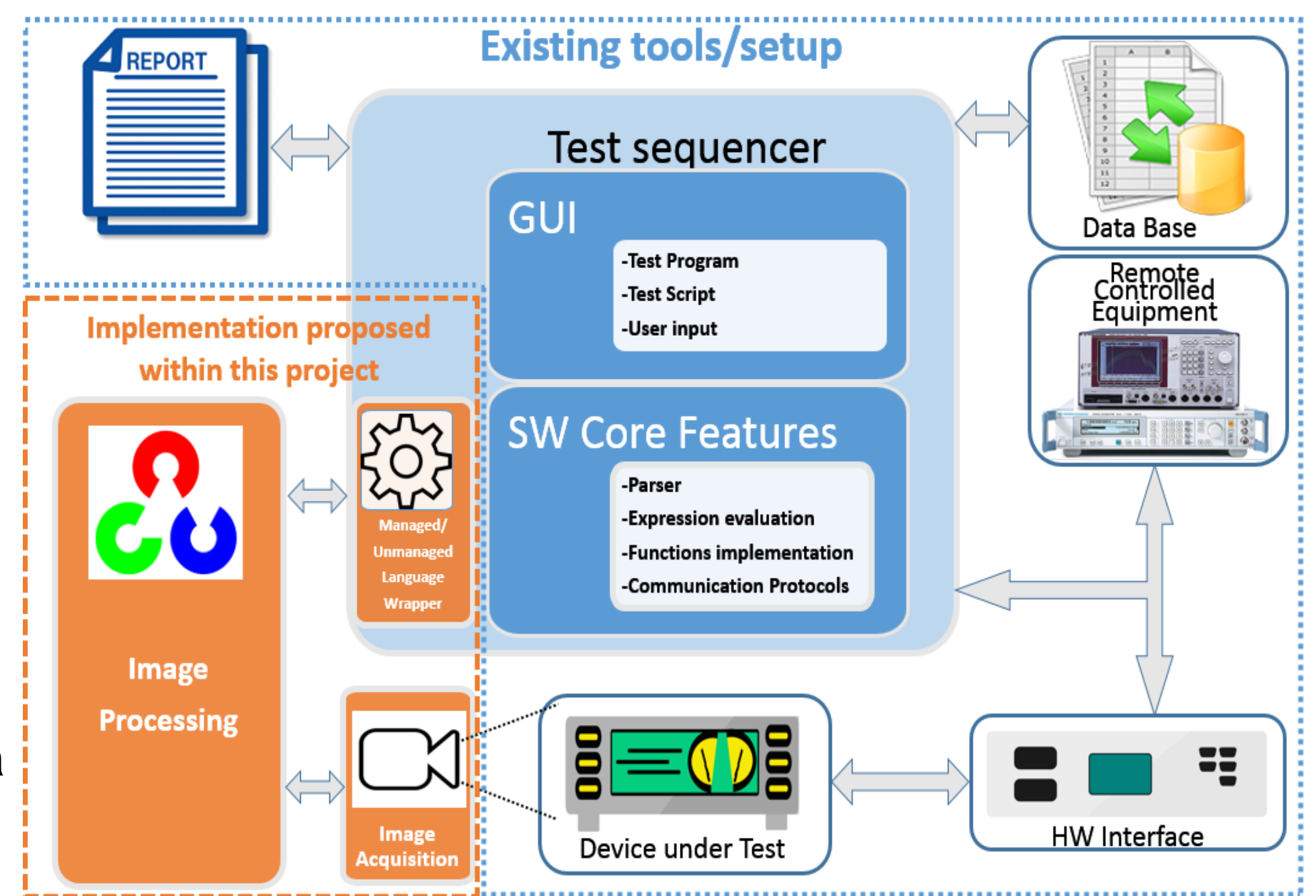
RESULTS AND CONCLUSIONS

With the implementation of this project we will be able to automatically inspect mechanical components and graphics contents of a car dashboard, generating reports with the results of the samples construction processes and the measured values. In this way, becomes possible an evaluation and validation of test specifications, features and commands of other programming and calibration tools, verification of precision and accuracy of the results, allowing the early detection and correction of possible problems before the construction of the production line stations.

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