Püsödökod

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In calibration industry,

- There are many complex measurement devices.
- Novice technicians are tend to break devices.
- Training of technicians are costly and takes time.
Solution

Our Solution is MeasureGuide

MeasureGuide is a product that
• guides the technician throughout the measurement process.
• detects the errors and warns the user
• is extendible to many measurement devices
• saves money and time
Our Structure

Operator Part
- Identify new devices / functions
- Add Related Images for each Use Cases
- Intermediate Machine Learning Processing
- Server

Technician Part
- MeasureGuide
  - Machine Learning
  - OCR
- Guides
  - Choose the camera
  - Choose the measurement device
  - Choose the function
- Server
Operator Part

We have developed the operator part of MeasureGuide so that Operator is able to

- Identify/Update new measurement devices
- Identify/Update functions
- Add true/false image cases for function steps

Then,

- Data is trained by machine learning algorithm for these steps
- Necessary data is sent to server
Technician Part

We have developed the technician part of MeasureGuide so

• Each time application starts, it checks the server for upgrades of new devices

• It guides the technician with visually and audibly according to his
  ▪ camera choice
  ▪ device choice
  ▪ function choice
Machine Learning Part

- Dataset which operator provides as “true” and “false” image cases will be used to train a classifier.

- New images that are taken by technician are classified with respect to dataset.

- SIFT, k-means and SVM techniques are used in Machine Learning part.
OCR

• For the measurement devices that have a digital screen, we implemented OCR to read some variables on the screen.

• Necessary parts on the screen are cropped and current state of the device is read.
Future Extensions

• This product may be progressed to be ready-to-use in outdoor measurement activities.

• This application may also be developed in order to use in mobile devices for the ease of use in outdoor.
For more information:
https://senior.ceng.metu.edu.tr/2016/pusodokod/