Request for Information - Image Analysis - Agder Energi Nett

Introduction

As the access to images and video increase rapidly in the grid domain, a whole new range of possibilities arise. However, to work efficiently with the vast amount of data, new methods and techniques are needed to fully exploit the potential. The objective of this RFI is to give Agder Energy Nett an overview of available products, services and competence related to image analysis.

About Agder Energi Nett

Agder Energi Nett is a company in the Agder Energy Group and is with its 200 000 customers the fourth largest grid company in Norway. The company owns and operates the distribution grid in the Agder region in southern Norway. Based on the implementation of smart metering, Agder Energi Nett has taken major steps in the direction of becoming a data driven company. Currently there is increasing focus on innovation and analysis, of which image analysis is a vital part.

Agder Energi Nett's strategy is to be a lean organization and utilize market players to address needs that are not within our core business. Although images play a vital role in documentation and operational work, Agder Energi Nett does not necessarily aim for being a leading company within image analysis. A more natural approach would be to search for available products, services and competence, whereupon we will base our strategy for how to address relevant needs.

Background and relevant cases

Agder Energi Nett obtains thousands of images yearly, related to various segments of grid construction and operation. The volume of video is currently limited, but steadily increasing. Hence, although the terms used in this RFI are "image" and "image analysis", solutions that support video analysis are also relevant.

The objective is to use these images to improve existing work processes, or to establish new processes that previously have not been viable. Work processes and needs include, but are not limited to grid maintenance, in-flight analysis, grid construction and smart meter installation and maintenance.

Currently image analysis is to a large extent performed manually, and hence is very time consuming. Moreover, human error may lead to faulty conclusions and hence reduced quality in the work performed. Hence there is a need for a more efficient way to handle image analysis, while at the same time ensuring better quality in the resulting conclusions. It is also important that the result of image analysis can be used seamlessly integrated the relevant work process.

Grid Inspection

Images of the grid, taken from helicopters or drones, are used to assess maintenance needs. Grid lines, masts, poles and attached equipment are pictures regularly as a part of maintenance routines. Faults and potential dangers are assessed based on visual inspection.

In-flight analysis / Edge analysis

When shooting images in the field, it is sometimes convenient to do immediate analysis and make decisions based on predefined criteria. This may for instance be assessment of image quality, where a new image needs to be captured if the image quality is insufficient. Another example arises in fault situations, where drones/helicopters scan the grid and an alarm needs to be raised immediately if a fault is detected.

Grid construction

When new grid elements are constructed (transformation stations, secondary substations, line segments etc), images compose an important part of the documentation. Before the construction can be approved and set in operation, the documentation must be accepted. Images need to be inspected and assessed in order to accept / reject the documentation. A swift feedback to the contractor will shorten the project phase, and hence projects may be shorter and more cost-efficient.


Installation and maintenance of smart meters

When an energy meter (smart meter) is installed or replaced (e.g. due to malfunction), images must be submitted to document the status of the old meter as well as the new installation. These images must be validated to accept the installation.

Identification, classification and object recognition in technical drawings

Technical drawings are important as documentation, but it is often laborious to obtain the meta data within the drawings. Precise recognition of symbols, electrical connections, text and numbers is needed in order to fully exploit the stored information.
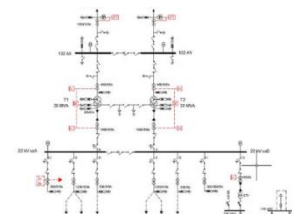
Instructions to respondents

How to reply

See the attached spreadsheet for questions and request for input. Fill in replies in the indicated cells. Feel free to complement your reply by referring to brochures, white papers, documentation, web pages etc. When referring to such material, please give precise references to pages/sections/tables or similar. Material referred to must be available online or must be attached to your response. In case you have relevant information that we have not requested, feel free to add this as well.

Deadline

Deadline for responding to this RFI is **16h00 on Friday March 20th, 2020**.

Questions

Email questions to Elin Svennevig, see contact information below.

Submission

To submit a reply, send the following

- The attached spreadsheet, with the indicated cells filled in
- Attachments, if any (brochures, white papers, documentation etc that cannot be found online must be attached).

Email your reply to Elin Svennevig, see contact information below.

Contact

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