QUICKSCAN - CANVAS

Computer vision

NAME: Computer vision
DATE: November 4, 2026 4:46 AM

DESCRIPTION OF TECHNOLOGY
AI-Assisted Visual Inspection PoC for PCUs

This technology is a proof-of-concept computer vision system designed to support visual inspection of PCUs on the manufacturing shop floor. A fixed camera captures an image of each PCU under defined conditions. The image is analysed by an anomaly-detection model that has learned the visual…

HUMAN VALUES

The technology may affect operators professional identity because it introduces AI-generated anomaly outputs into a task that relies on visual experience and quality judgement. If the system is perceived as replacing or overruling expertise, operators may feel reduced from skilled inspectors to users who merely follow machine recommendations.

The PoC should therefore be presented as an advisory tool that supports attention and evidence gathering. Operators…

TRANSPARENCY

The intended operation of the PoC should be explained clearly to operators and other stakeholders. They should understand that the system compares PCU images with normal-reference images and produces an anomaly score and heatmap to highlight visual differences. It does not confirm a defect, identify its root cause, or make autonomous quality decisions.

As this is an internal proof of concept, there is no external…

IMPACT ON SOCIETY

Manual inspection of PCUs can be inconsistent because it depends on operator attention, experience, workload, and visual conditions. As a result, small or subtle visual deviations may be overlooked or identified late.

This is a relevant quality-control problem because visible non-conformities may require rework, investigation, or rejection. However, the problem should not be overstated: not every visual difference is a defect, and not every defect is visible t…

STAKEHOLDERS

- Assembly operator

SUSTAINABILITY

> The current PoC uses limited energy through the fixed camera, local computing device, image storage, and anomaly-detection inference. Its energy demand is expected to be low at PoC scale because images are processed intermittently during inspection rather than through continuous large-scale model training.
>
> Nevertheless, energy use should be considered before scale-up. Training or retraining, increased inspection volume…

HATEFUL AND CRIMINAL ACTORS

> The technology could be misused if inspection results, images, or system settings were intentionally altered to conceal a non-conforming PCU or to avoid responsibility for a quality failure. For example, an unauthorised user could remove inspection records, modify normal-reference images, or change the anomaly threshold so that deviations are less likely to be flagged.
>
> These risks should be mitigated through role-based acces…

DATA

> Yes. The main data limitation is that the anomaly-detection model learns only from the normal-reference images provided to it. If these images do not represent acceptable variation in PCUs, lighting, camera position, or assembly conditions, the system may generate false positives or fail to detect relevant deviations.
>
> This is addressed by using controlled image capture, documenting the reference dataset, restricting changes to…

FUTURE

In the future, the technology could support more consistent visual inspection, earlier attention to observable deviations, and improved traceability of recurring quality issues. If validated with representative production data, it could be extended to additional PCU variants or inspection stations.

However, wider use could also create over-reliance on AI outputs, reduced independent inspection skills, or pressure to use the system for productivity monitoring rather than qualit…

PRIVACY

> The PoC is designed to process images of PCUs rather than personal data. However, inspection records may contain indirectly identifiable information, such as timestamps, workstation identifiers, user login details, or operator decisions if these are recorded.
>
> Therefore, any operator-related data should be minimised, protected through role-based access, and used only for quality assurance, traceability, or approved system…

INCLUSIVITY

The system does not make decisions about people, so it is not expected to create demographic bias. However, it can contain technical bias if the normal-reference dataset does not represent legitimate variation in PCUs, camera positioning, lighting, or assembly conditions.

In that case, the model may incorrectly flag certain acceptable PCUs as anomalous or fail to identify deviations that are not represented in the test data. This risk is reduced through…

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QUICKSCAN - CANVAS - HELPSIDE

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HUMAN VALUES

How is the identity of the (intended) users affected by the technology?

To help you answer this question think about sub questions like:

- If two friends use your product, how could it enhance or detract from their relationship?
- Does your product create new ways for people to interact?…

TRANSPARENCY

Is it explained to the users/stakeholders how the technology works and how the business model works?

- Is it easy for users to find out how the technology works?
- Can a user understand or find out why your technology behaves in a certain way?
- Are the goals explained?
- Is the idea of the technology explained?
- Is the technology company transparent about the way their…

IMPACT ON SOCIETY

What is exactly the problem? Is it really a problem? Are you sure?

Can you exactly define what the challenge is? What problem (what 'pain') does this technology want to solve? Can you make a clear definition of the problem? What 'pain' does this technology want to ease? Whose pain? Is it really a problem? For who? Will solving the problem make the world better? Are you sure? The problem definition will help you to determine…

STAKEHOLDERS

Who are the main users/targetgroups/stakeholders for this technology? Think about the intended context by…

When thinking about the stakeholders, the most obvious one are of course the intended users, so start there. Next, list the stakeholders that are directly affected. Listing the users and directly affected stakeholders also gives an impression of the intended context of the technology.
…

SUSTAINABILITY

In what way is the direct and indirect energy use of this technology taken into account?

One of the most prominent impacts on sustainability is energy efficiency. Consider what service you want this technology to provide and how this could be achieved with a minimal use of energy. Are improvements possible?

HATEFUL AND CRIMINAL ACTORS

In which way can the technology be used to break the law or avoid the consequences of breaking the law?

Can you imagine ways that the technology can or will be used to break the law? Think about invading someone's privacy. Spying. Hurting people. Harassment. Steal things. Fraud/ identity theft and so on. Or will people use the technology to avoid facing the consequences of breaking the law (using trackers to evade speed radars or using bitcoins to launder…

DATA

Are you familiar with the fundamental shortcomings and pitfalls of data and do you take this sufficiently into…

There are fundamental issues with data. For example:

- Data is always subjective;
- Data collections are never complete;
- Correlation and causation are tricky concepts;
- Data collections are often biased;…

FUTURE

What could possibly happen with this technology in the future?

Discuss this quickly and note your first thoughts here. Think about what happens when 100 million people use your product. How could communities, habits and norms change?

PRIVACY

Does the technology register personal data? If yes, what personal data?

If this technology registers personal data you have to be aware of privacy legislation and the concept of privacy. Think hard about this question. Remember: personal data can be interpreted in a broad way. Maybe this technology does not collect personal data, but can be used to assemble personal data. If the technology collects special personal data (like…

INCLUSIVITY

Does this technology have a built-in bias?

Do a brainstorm. Can you find a built-in bias in this technology? Maybe because of the way the data was collected, either by personal bias, historical bias, political bias or a lack of diversity in the people responsible for the design of the technology? How do you know this is not the case? Be critical. Be aware of your own biases.…

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