



NAME: ROS automatic floor cleaner
DATE: June 10, 2022 2:27 PM
DESCRIPTION OF TECHNOLOGY
A system that controls a bunch of robots that is able to clean a predefined area autonomously.
This has to be made with the ROS2 framework using behavior trees and the Turtlebot3 robot.
The original problem is that stables need to be cleaned. doing this by hand is a lot of work. It is realistic to expect to solve this problem using this technology....




HUMAN VALUES




The technology is not made for personal use. there are two kinds of spaces this platform could work. in stables or in an public environment. The cleaners of a public environment could feel threatened. The robots current goal is to clean floors. This is partially the cleaners part. This could be the beginning of a complete job takeover. This could frustrate them and they could lash out.
for in the stables it is possible the animals could get frustrated.

TRANSPARENCY




To Fontys and Lely it will be explained in depth how it works. They are curious how this project has evolved and how it works.

IMPACT ON SOCIETY




The main goal of this project is to experiment with ROS2 in combination of behavior trees. to do this we have the objective to create a fleet of robots that are able to clean a certain environment.

STAKEHOLDERS




- The area to be cleaned
- Lely Farming Innovators
- Fontys

SUSTAINABILITY




Currently we do not think about energy use. This project is proof of concept and is scaled down. When it would be implemented at full scale the electrical costs could be high but only when in use. It is not like AI that constantly needs to be improved by countless hours of training with the needed electricity to power it.

HATEFUL AND CRIMINAL ACTORS




The robots constantly know their surroundings. If needed it could be made to recognize humans. if somebody has access to the system hoe could be able to tell if somebody is there. This could be useful for when trying to break into the building where the robot is operating.

DATA



The robot could gather data about things like what goals it had, its locations and found obstacles. These things could be useful but the system should not be too dependent of it.

FUTURE




Everyday tasks could become automated. We get lazier. No more cleaning jobs. robots become a part of interaction.

PRIVACY



No

INCLUSIVITY



Yes, the fleet manager decides what robot gets what job. It generates a cost map per robot and looks for the best suited bot. This gives it a bias towards the "better" robots. That being said it is not like it discriminates like humans. I don't think this is an ethical problem.

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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...


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...


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...

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?...

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.
...

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;...


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....


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...


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?

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?

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