NAME: LS-NeoCare bioreactor
DATE: May 17, 2024 7:16 AM
DESCRIPTION OF TECHNOLOGY
The bioreactor will stimulate the 3D-printed cartilage so it can function in the adult body.

TICT

HUMAN VALUES

If successful, the technology and the research it is part of, will allow for a healthier population worldwide by providing a durable solution to help Osteoarthritis patients.

TRANSPARENCY

there is not really a business model to speak of. our project is part of a larger research project. the researchers in this larger project are our stakeholders and users. we not only need to be very transparent on how the system works but our stakeholders will also be involved with the designing of the system and by extent choosing how its works.

IMPACT ON SOCIETY

Osteoarthritis affects a vast population, causing progressive cartilage degeneration and substantial pain, significantly limiting daily activities and work performance.The costs associated with OA are expected to escalate, with an aging population and obesity contributing to its rapid increase. The absence of efficient treatment options exacerbates the impact of OA on patients' lives and underscores the critical need for groundbreaking interventions.

STAKEHOLDERS

- Eindhoven University of Technology
- Fontys University of Applied Sciences (Michiel van Osch, Omar Idoum and Paul Goede)
- University Medical Center Utrecht
- Leiden University Medical Centre
- Regenerative Medicine Crossing Borders
- Corbion (legal entity: Purac Biochem BV)
- Demcon
- Scinus Cell Expansion BV…

SUSTAINABILITY

The system contains controllers that limit the power to the minimum necessary for the use of the electronic components to realise the specify tasks of the system. Undo in the future could be improvements in which type of controllers to use or a redesign that will improve the energy efficiency of the system.

HATEFUL AND CRIMINAL ACTORS

DATA

this technology is used to gather data to futher research into the field of biomedical engineering. this technology will not be able to collect privacy data of any sort.

FUTURE

This technology will be used to futher research into the field of cartilage implantations and into cartilaage it self.

PRIVACY

INCLUSIVITY

yes this technology has a bias to improve human knowledge in the field of cartilage research. we can think of very little reasons to be against this improvements without using reasoning based upon things like religion or conspiracys. and because of this we think that it might be incorrect to call it a bias.

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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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