

# SmartParking

Smart Parking

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Level of education: Bachelor

# Technology Impact Cycle Tool

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## Impact on society

What impact is expected from your technology?

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

When a visitor has made an appointment with the secretary the visitor has to go into the building and the secretary must message the manager that their visitor has arrived for the meeting. This process takes a long time and wastes a lot of time.

### **Are you sure that this technology is solving the RIGHT problem?**

Yes, the problem is that the secretary has too much work to do per appointment and our solution will solve this.

### **How is this technology going to solve the problem?**

We are going to automate and smooth out how meetings from visitors will be handled. The managers are informed when the visitor arrives at the car park instead of when they arrive at the secretary. The visitor will also be informed when there is no more parking space. This will reduce the time it would take a secretary to handle appointments.

### **What negative effects do you expect from this technology?**

There could be extremely unlikely cases where messages will not be sent if sensors malfunctioned, in that case, the workflow would for that exception go back to the old way, so it would still work.

### **In what way is this technology contributing to a world you want to live in?**

It makes sure no time is wasted and we will work as efficiently as possible.

### **Now that you have thought hard about the impact of this technology on society (by filling out the questions above), what improvements would you like to make to the technology? List them below.**

Further improvements to our project would be things that would make the workflow within the company even smoother and even less time-consuming.

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## Hateful and criminal actors

What can bad actors do with your technology?

*This category is only partial filled.*

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

Because the application is meant for internal use, only internal employees will have access, the risk of someone using the software other than it was intended is not high. If the company trusts the employees that will have access to the software, then the application itself cannot be used to break the law.

### **Can fakers, thieves or scammers abuse the technology?**

No. As mentioned before, no one other than the intended users should have access to the application. The program will be hosted on the company's internal network, so to have any potential access to the program would mean that the company's network has been breached.

### **Can the technology be used against certain (ethnic) groups or (social) classes?**

No. The application only records guests that have business with the company, so the program does not differentiate between any potential guest or user.

### **In which way can bad actors use this technology to pit certain groups against each other? These groups can be, but are not constrained to, ethnic, social, political or religious groups.**

Not applicable.

### **How could bad actors use this technology to subvert or attack the truth?**

A potential guest can lie about their identity or intention of the visit so that the company loses time and resources dealing with someone who has not been truthful.

On the other hand, the user of the application is held accountable for how they input the data to the application, but to regulate that, the company has to be confident in the person to whom they have given access.

**Now that you have thought hard about how bad actors can impact this**

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**technology, what improvements would you like to make? List them below.**

*This question has not been answered yet.*

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## Privacy

Are you considering the privacy & personal data of the users of your technology?

*This category is only partial filled.*

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

The application registers personal data to only those who have agreed to supply it. That data is only superficial and not very impactful. The only potential valuable data that is stored in the license plate of the guest and their name.

### **Do you think the technology invades the privacy of the stakeholders? If yes, in what way?**

The data stored by the application is only intended for use in the context of the application. The data will not be required or used in any outside context.

### **Is the technology is compliant with prevailing privacy and data protection law? Can you indicate why?**

Since there is only one user of the application, their data is stored in terms of credentials and only used in that context. Together with that, the user's data is used only internally in the company, and it's not at risk of a potential data breach.

### **Does the technology mitigate privacy and data protection risks/concerns (privacy by design)? Please indicate how.**

The password of the users is stored as a salted and hashed string and not useable outside of the context of the application.

The guest's data is stored internally in the program but is not protected by any special means, since it's not particularly confidential information to begin with.

### **In which way can you imagine a future impact of the collection of personal data?**

The many guests that will be recorded in the application will certainly have a decent size after some time. For that reason a good approach will be to delete any guest data that is old enough that it is not considered useful.

### **Now that you have thought hard about privacy and data protection, what improvements would you like to make? List them below.**

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This question has not been answered yet.

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## Human values

How does the technology affect your human values?

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

The users data (license plate number) is stored in the system and the consent of user is not taken in written form.

This technology can be harmful in future if every organization implements this technology, eventually driving everyone into sharing their license plate number.

### **How does the technology influence the users' autonomy?**

This technology does help users to make decisions and it does not make the decision for the user, it is more like an advance planner.

### **What is the effect of the technology on the health and/or well-being of users?**

It is completely harmless for the users.

### **Now that you have thought hard about the impact of your technology on human values, what improvements would you like to make to the technology? List them below.**

We would like it if the users are informed about all the details about what data is stored etc. In the form of an agreement.

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## Stakeholders

Have you considered all stakeholders?

*This category is only partial filled.*

**Who are the main users/targetgroups/stakeholders for this technology? Think about the intended context by answering these questions.**

**Name of the stakeholder**

Sioux

**How is this stakeholder affected?**

Owner of the project

**Did you consult the stakeholder?**

Yes

**Are you going to take this stakeholder into account?**

Yes

**Name of the stakeholder**

Guests

**How is this stakeholder affected?**

Saving appointments

**Did you consult the stakeholder?**

Yes

**Are you going to take this stakeholder into account?**

Yes

**Name of the stakeholder**

Secretary

**How is this stakeholder affected?**

User of the system

**Did you consult the stakeholder?**

Yes

**Are you going to take this stakeholder into account?**

Yes

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**Did you consider all stakeholders, even the ones that might not be a user or target group, but still might be of interest?**

**Name of the stakeholder**

Manager

**How is this stakeholder affected?**

Register in appointments. Receive notifications

**Did you consult the stakeholder?**

Yes

**Are you going to take this stakeholder into account?**

Yes

**Now that you have thought hard about all stakeholders, what improvements would you like to make? List them below.**

*This question has not been answered yet.*

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## Data

Is data in your technology properly used?

### **Are you familiar with the fundamental shortcomings and pitfalls of data and do you take this sufficiently into account in the technology?**

We are familiar with the shortcomings of some data types, but in our system, this should not matter. How does technology organize continuous improvement when it comes to the use of data? When the rules surrounding some of the more personal data we use get changed we will change our usage of them so it will comply with new rules.

### **How does the technology organize continuous improvement when it comes to the use of data?**

The main data types we use in our project are emails, phone numbers, and license plates. We do not think these types of data will change any time soon, but if they change, we will have to update our system accordingly so it will work with those changes.

### **How will the technology keep the insights that it identifies with data sustainable over time?**

The main data types we use in our project are emails, phone numbers and license plates. We do not think these types of data will change any time soon, but if they change, we will have to update our system accordingly so it will work with those changes.

### **In what way do you consider the fact that data is collected from the users?**

There is no business model behind the Smart Parking system itself. The program is meant to make the business of the company smoother but itself does not generate any money or revenue.

### **Now that you have thought hard about the impact of data on this technology, what improvements would you like to make? List them below.**

A lot of unnecessary data is scanned now because we cannot distinguish visitors from employees without scanning their license plates. A further improvement would be some solution that would require us to scan less data than we are doing right now.

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## Inclusivity

Is your technology fair for everyone?

### **Will everyone have access to the technology?**

Only the company Sioux will have access to the technology.

### **Does this technology have a built-in bias?**

The technology has a bias towards the workflow of the secretary since it is the only intended user for it. Other than that, there is no bias towards who the secretary is. And for the guest there is no bias because anyone can be a guest.

### **Does this technology make automatic decisions and how do you account for them?**

No automatic decisions are made by the technology.

### **Is everyone benefitting from the technology or only a a small group?**

#### **Do you see this as a problem? Why/why not?**

Only the secretary and the clients that are entering the building of the company will be benefitting from the technology with would not be a problem since that is the intended use for it.

### **Does the team that creates the technology represent the diversity of our society?**

The technology is build by a team of students from different countries and educational backgrounds.

### **Now that you have thought hard about the inclusivity of the technology, what improvements would you like to make? List them below.**

To improve the inclusivity of the technology I would extend it so in a way that adds another small group of users, for example a way for the managers to specify a favorable time for future meetings.

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## Transparency

Are you transparent about how your technology works?

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

Our solution works on the most recent technologies which are understandable. Yes, it is transparent as we collect only the data that we need for the application to work, and it is encrypted in case the database is stolen or lost.

### **If the technology makes an (algorithmic) decision, is it explained to the users/stakeholders how the decision was reached?**

The application does not use an algorithm.

### **Is it possible to file a complaint or ask questions/get answers about this technology?**

Yes absolutely.

### **Is the technology (company) clear about possible negative consequences or shortcomings of the technology?**

Yes, it's a straightforward solution to serve dedicated purposes and no more.

### **Now that you have thought hard about the transparency of this technology, what improvements would you like to make? List them below.**

Since the application is made in such a way that each hardware works on its own. It will be easy to set up new and better sensors when the user wants. The software is adaptable and can be improved when technology advances.

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## Sustainability

Is your technology environmentally sustainable?

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

Since we will be using the sensors most of the time hence, we believe that our solution will not consume too much energy and will work only when it senses an object.

It will not be consuming much energy since we will not be using many energy-consuming devices.

Also, the waste product from the introduced devices is not hazardous to the environment.

### **Do you think alternative materials could have been considered in the technology?**

I think we chose the right materials for the project.

We could have chosen multiple sensors to detect the plate and parking spots for more accurate information.

### **Do you think the lifespan of the technology is realistic?**

Yes, it is realistic.

### **What is the hidden impact of the technology in the whole chain?**

The only downside I see is that the number plates and the names could be encrypted to avoid any data miscarriage.

### **Now that you have thought hard about the sustainability of this technology, what improvements would you like to make? List them below.**

I would make the number plates encrypted and as well as the whole Database encrypted. We could have implemented more sensors.

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## Future

Did you consider future impact?

### **What could possibly happen with this technology in the future?**

This technology aims to help the workflow of the secretary and can be extended to help anyone who manages internal or external appointments. The technology can be further improved by assigning a specific parking spot for each client/ guest instead of just checking for empty spots.

### **Sketch a or some future scenario (s) (20-50 years up front) regarding the technology with the help of storytelling. Start with at least one utopian scenario.**

In a utopian future, this application could help the secretary of any company focus on different tasks by removing the need to interact with the visitors of a company. This application could also help by removing the need to think about parking by directing the car to the parking spot.

### **Sketch a or some future scenario (s) (20-50 years up front) regarding the technology with the help of storytelling. Start with at least one dystopian scenario.**

In a dystopian scenario the application would completely replace the job of the secretary by allowing the visitors to schedule their own appointments based on an availability list automatically created from the calendar of the managers.

### **Would you like to live in one of this scenario's? Why? Why not?**

I would like to live in the scenario where the application is helping the workflow of a company and not replacing the jobs of secretaries.

### **What happens if the technology (which you have thought of as ethically well-considered) is bought or taken over by another party?**

No measures to prevent a different party from handling the technology differently were taken.

### **Impact Improvement: Now that you have thought hard about the future impact of the technology, what improvements would you like to make? List them below.**

One of the improvements could be to create a document that shows a plan of where to take the application in the next few years and focus more on helping secretaries do their job instead of doing the job for them.