

Stresspatches in escaperooms

Patches with biometric sensors which can be used to detect stress levels

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Context of use: Work

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?

The main problem of this project is the way in which hints are given in most escaperooms; often you still have to wave at a camera, press a button or waste a lot of time before you get a hint. It is also possible you breeze through the escaperoom without any effort, which removes the fun of a challenging puzzle.

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

It is not solving the main problem, which is poor escaperoom design. This can be used as a way to mask this problem and make the experience better for everyone though.

How is this technology going to solve the problem?

It will solve the problem by making escaperoom experiences feel more intuitive and immersive by allowing the employees to give more subtle hints at the right time

What negative effects do you expect from this technology?

I expect a negative effect of this technology could be the attempts at misuse by users in an attempt to get easy hints. This can still be prevented by the escaperoom employees, as they will still be watching through the cameras to check if people aren't messing with the sensors or each other to change the values.

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

It makes escaperooms more fun and also more economical, as they can be reused multiple times if used right

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.

If anything privacy is an issue that could be improved upon, but I do not have the expertise to do this (yet)

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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?

This technology works similar to a lie detector, except its sensors are concentrated in a singular patch which can be stuck on. In our use case the patch is put on and collects data with prior consent, but this could be used without (enough) consent of the users which could result in a breach of the GDPR. As it works with biometric data it could also reveal sensitive personal information, which is why in the design of our product the operators of the escaperoom have no access to the sensor data.

Can fakers, thieves or scammers abuse the technology?

This question has not been answered yet.

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

This question has not been answered yet.

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.

This question has not been answered yet.

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

This question has not been answered yet.

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

As stated previously, the product does register personal data by reading biometric sensors. The data will not be available to the operators of the escaperoom however. Users also have to give consent if they want to get a printout of their data at the end of the escaperoom, so it is all private by default.

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

This question has not been answered yet.

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

This question has not been answered yet.

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

This question has not been answered yet.

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

This question has not been answered yet.

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

This question has not been answered yet.

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Human values

How does the technology affect your human values?

This category is only partial filled.

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

The identity of the intended users could reveal information about how easily people get stressed/scared, which could change people's way of viewing their friends. I do not believe this is very significant though, as it is in an isolated situation where invoking those feelings is desired. This can be used in corporate settings, but as mentioned previously these stress levels are not shown to the players unless they want to.

How does the technology influence the users' autonomy?

This question has not been answered yet.

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

This question has not been answered yet.

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.

This question has not been answered yet.

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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

Escaperoom owner (more reuseability of the room)

How is this stakeholder affected?

-

Did you consult the stakeholder?

Yes

Are you going to take this stakeholder into account?

Yes

Name of the stakeholder

Escaperoom employees (easier work)

How is this stakeholder affected?

-

Did you consult the stakeholder?

Yes

Are you going to take this stakeholder into account?

Yes

Name of the stakeholder

Escaperoom clients (more personalised experience)

How is this stakeholder affected?

-

Did you consult the stakeholder?

Yes

Are you going to take this stakeholder into account?

Yes

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Name of the stakeholder

insurance companies (use the data to detect health issues?)

How is this stakeholder affected?

-

Did you consult the stakeholder?

Yes

Are you going to take this stakeholder into account?

Yes

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

-

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?

This category is only partial filled.

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

yes, The data used will get a baseline before it gets processed and the sensitivity can be adjusted along the way, but in some cases there might be problems with the data collection like sensor malfunction. This data is also not a direct readout of the stress level but an interpretation of biometric sensors that measure values related to stress.

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

This question has not been answered yet.

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

This question has not been answered yet.

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

This question has not been answered yet.

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

This question has not been answered yet.

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Inclusivity

Is your technology fair for everyone?

This category is only partial filled.

Will everyone have access to the technology?

This question has not been answered yet.

Does this technology have a built-in bias?

I do not believe this technology has a significant built-in bias, as every user gets a personalized baseline. It may have some issues with measuring certain skin types (for example extremely dry skin) but this can only be found out when the actual product is available for testing.

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

This question has not been answered yet.

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

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

This question has not been answered yet.

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

This question has not been answered yet.

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

This question has not been answered yet.

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Transparency

Are you transparent about how your technology works?

This category is only partial filled.

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

Yes, the users get an introduction of the technology before using the product and will fill in a survey to indicate their preferences and consent of the data collection. Use of this technology is optional, as it only acts as a supplementary indicator for the escaperoom employees for when to give a hint or open a more difficult path.

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

This question has not been answered yet.

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

This question has not been answered yet.

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

This question has not been answered yet.

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

This question has not been answered yet.

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Sustainability

Is your technology environmentally sustainable?

This category is only partial filled.

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

The product only uses low power sensors and the accompanying program can be run on a small computer, so the energy usage is low and can be turned off completely when not in use.

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

This question has not been answered yet.

Do you think the lifespan of the technology is realistic?

This question has not been answered yet.

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

This question has not been answered yet.

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

This question has not been answered yet.

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Future

Did you consider future impact?

This category is only partial filled.

What could possibly happen with this technology in the future?

The stress patches can be used in a large variety of ways, but as our use case is isolated to escaperooms I believe that it will improve the user experience and make them more reuseable over time as multi-path escaperooms get adapted more and more. It could be used as a stepping stone to different projects measuring stress, which could for example help people take breaks on time.

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.

This question has not been answered yet.

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.

This question has not been answered yet.

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

This question has not been answered yet.

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

This question has not been answered yet.

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.

This question has not been answered yet.