QUICKSCAN - CANVAS

webapplication react+vite, firebase

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DATE: December 27, 2025 5:31 PM

DESCRIPTION OF TECHNOLOGY
It is a productivity app for the first year students at Erasmus Applied science to go trough the exercises of programming essentials 1.

HUMAN VALUES

The technology creates new ways to interact through Leaderboards and classroom competitions. It empowers students by visualizing them as a "Hero" rather than a "struggling student."It shifts students from passive consumers to active "players" of their own education. There is a risk that students at the bottom of the leaderboard might feel stigmatized or demotivated.

TRANSPARENCY

How XP, Loot, and Combat work is clearly explained in the "Getting Started" section of the app. As an educational project, the model is non-profit. This is communicated to gain trust regarding data usage.

IMPACT ON SOCIETY

any first-year ICT students (specifically in Programming Essentials 1) struggle with a lack of self-discipline and motivation for repetitive coding exercises. The frustration of falling behind on coursework, leading to procrastination and ultimately high failure rates. The frustration of falling behind on coursework, leading to procrastination and ultimately high failure rates). Yes. By transforming education into a motivating experience, we increase success rates and reduce student stress.

STAKEHOLDERS

- Students at Erasmushogeschool Brussel (Programming Essentials 1)
- Teachers

SUSTAINABILITY

The use of Serverless Firebase Cloud Functions ensures that servers only consume energy during active requests rather than running 24/7. The React frontend is lightweight and optimized via Vite, minimizing energy consumption on the student's device.

HATEFUL AND CRIMINAL ACTORS

Yes. By transforming education into a motivating experience, we increase success rates and reduce student stress.Students might attempt to manipulate the TasksApi or DevApi (e.g., via scripts) to mark tasks as completed without actually performing the work. The system could be used to create a false sense of progress for teachers, while the student's actual knowledge remains insufficient.

DATA

XP values for tasks are subjectively determined by teachers via the ConfigApi. Data on task completion does not tell the whole story of a students actual understanding. A high level in HabitHero does not automatically make someone a good programmer; the system must maintain this distinction.

FUTURE

f used globally, the norm for education could shift from "having to learn" to "wanting to learn." An excessive focus on the "game" might overshadow the intrinsic motivation to learn (the extrinsic motivation trap).

PRIVACY

Yes, the technology registers personal data through Firebase Authentication and the UsersApi. Name, email address, study progress (courses, modules, tasks), and unique User IDs (UID). o explicit data on ethnicity or health is collected, but academic results are considered sensitive information under GDPR.

INCLUSIVITY

The RPG style (combat, monsters) may subconsciously appeal more to male-identifying students. We use diverse avatars and a neutral interface (Tailwind) to appeal to the widest possible student group.

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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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