



DigiEduHack Solution

Oulu - Digital learning solutions promoting Zero-harm

Challenge: Zero Harm Hack

Transmitter Safety Solution

A solution to prevent daily accidents caused by not wearing PPE

The Transmitter Safety Solution prevents daily work accidents and small injuries that are caused by not wearing the right personal protection equipment (ppe) while starting and working on machines especially in the industrial fields.

Team: TSS

Team members

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Solution Details

Solution description

To prevent the daily work accidents and small injuries the workers get personal protection equipment (PPE) with radio-frequency identification (RFID) tags personalized, so that the PPE is connected to a certain worker. The workers have also a RFID-transmitter attached on their PPE.

It's a two-way-communication between the machine, transmitter and the machine. So first actually the machine sends a message to the transmitter with the information what kind of PPE the machine requires to be started, because different machines require different PPE. If the worker wants to work on a machine the transmitter will check if the worker is wearing all the PPE that the certain machine requires.

If all the required PPE is detected by the transmitter, the transmitter sends the information via RFID to the machine that the worker is allowed to work with this machine. If the worker isn't wearing all the required PPE or is wearing the wrong PPE the transmitter sends an error message to the

machine and it can't be started by the worker.

Solution target group

Our main target group are companies in the industrial field.

Solution impact

The benefits and the impact of our solution are:

- There will be less workplace accidents and small injuries.
- Workers will behave better at their workplace.
- The companies will save a lot of money with preventing the workplace accidents and the small injuries.
- Of course there will also be less lost work hours and according to that a better productivity.
- There will be a development of corporate social responsibility.
- With the transmitter you can collect the data and get insights about the issues: You can observe the quantity of the recorded issues, then draw conclusions out of it and make improvements.
- The supervisor will be noticed about the issues.
- If it happens many times companies can use the 5-times-WHY-method.
- 5-times-WHY-method:

"An example of a problem is: The vehicle will not start.

1. **Why?** - The battery is dead. (First why)
2. **Why?** - The alternator is not functioning. (Second why)
3. **Why?** - The alternator belt has broken. (Third why)
4. **Why?** - The alternator belt was well beyond its useful service life and not replaced. (Fourth why)
5. **Why?** - The vehicle was not maintained according to the recommended service schedule. (Fifth why, a root cause)" -> [Five whys](#)

Solution tweet text

TSS - Transmitter Safety Solutions, guarantees a safe workplace environment with a small device (transmitter) which you attach to your daily PPE. The device talks in a two-way communication with your clothes & the machine, the machine only works if all required equipment is there

Solution innovativeness

Our solution is according to our research a new innovation, that is currently not existing.

There is a similar solution with RFID to prevent work accidents but it's only to enter the working space. The worker has to pass a gate that detects the PPE. After entering for example the machine room the PPE isn't tracked anymore and the worker is probably not wearing all the required PPE.

Solution transferability

The TSS could be used in any industry where equipment is required and the risk of hurting the employees is quite high. It could then also be used in big kitchen or even in hospitals around the globe.

Solution sustainability

The device should be tested in one workplace, especially where there are lots of accidents. If the technology succeeds, it should be implemented into more workplaces.

It can be seen as a long-term solution which will improve the overall security in the environment where PPE is required.

Solution team work

Our team worked well together. Everyone was motivated and we had the same imaginations how we want to work together as a team. Every team member had their tasks and we can imagine to work together again.