

Problem & research

What?

- Fitness is causing 23% of all sports injuries in the Netherlands
- Healthcare after injuries is no longer included in health insurance
- Costs of these injuries are paid by society

Why?

- No warming up
- Overtraining
- Contraindicated exercises
- Wrong posture

Who?

- People aged 20-26 have the biggest risk on getting injured
- They spend the most time in the gym, the most often

Results of the conducted survey

Have you ever had an injury?



How do you think most of the injuries occur?



Do you use technology in the gym?



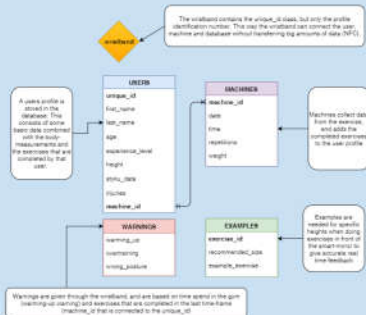
Personal data collection

Every member of the gym has her own profile with personal information about:

- her health & injury history
- her level of experience
- the outcome of the full body scan

In order to personalize the support, feedback and instructions.

Database



Wristband

To scan the machines & mirror (to connect user and machine) and to give feedback, the user wears the i-gym wristband.



NFC
NFC connectivity is used to pair the wristband with the machines and smart-mirror. the database can connect the exercise with the personal ID.

SPECIFICATIONS
32mm LCD 144x168 Display
Can display text, colors and images
Vibrating motor for notifications

Wi-Fi
The wristband is equipped with 2.4 GHz 802.11b/n/g Wi-Fi. This connection is used because it needs to get notifications and warnings in real-time.

Server/software

The software on the server is key in our concept as it does the maths of which feedback is given to the user in several ways.

The server checks for instance:

- if a warming up is done first
- if the user has done this exercise recently
- if the user can do this exercise, in relation to contra indicated exercises
- if the user is allowed to do this exercise, in relation to the exercises she has done this work out session.

Feedback is given by the wristband or the smart mirror.



Sport machines

To keep track on the exercises the user is doing the sport machines are scanned, data sharing takes place in order to support the user bases on her profile and previous work outs and/or exercises.

NFC/Wi-Fi
NFC & Wi-Fi connectivity for connection with the server and database for real time feedback and data saving (work out).

Smart mirror

To make sure free exercises are performed correctly, the i-gym mirror shows the user if what she is doing, is right or wrong.



NFC/Wi-Fi
NFC & Wi-Fi connectivity for connection with the server and database for real time feedback and data saving (work out).

KINECT SOFTWARE
The sensor is embedded in the mirror to give the user real time feedback during the exercise.

TOUCHSCREEN
A layer of PCT technology is placed on top of the mirror, allowing people to navigate the UI.

Conclusion

- Thanks to the kinect, i-gym works good for exercise in front of the smart mirror
- The wristband will create work out awareness
- More research is needed to find out how and what kind of feedback on users prefer while exercising

- With the use of i-gym the amount of injuries will decrease
- Injuries can also occur while exercising wrong on machines, our concept doesn't have a solution for that situation yet.

References

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