

PILOT PROJECT WITH TOBII and Finn Brewery

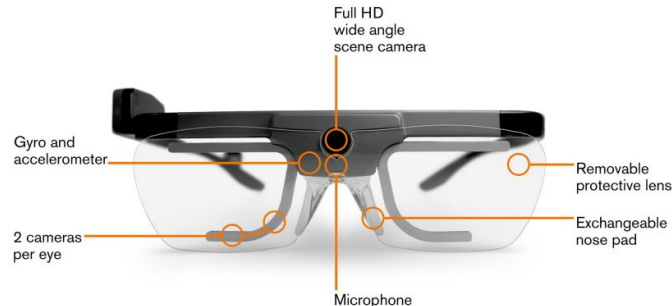
Tobii is the world leader in eye tracking, providing conditions for new insights into human behaviour and technology more adapted to humans, using eye tracking as their core. As they recently released Tobii Pro Glasses 2, we teamed up with Tobii Pro for a pilot project in order to explore what kind of data that can be collected through these kinds of devices and what value it can bring.

We see the potential value as two-fold;

- What insights can be provided to employers and/or employees from analysis of the collected data?
- What new innovations can be created from this kind of data?

About Tobii Pro Glasses 2

Tobii Pro Glasses 2 is a wearable eye tracker designed to capture natural viewing behavior in any real-world environment while ensuring robustness and accuracy.



With eye tracking, you can better understand people as they perform their daily tasks, make decisions or interact with their environment, all without interfering with their work.

Gathering instant and objective insights into an individual's performance will help to identify best skills and practices. As an employer, you might also be able to see wasted steps and improvement areas that you can address with proper training and skill transfer programs. By identifying exactly at which stage of a work process human errors occur, and their underlying factors, steps to counteract these can be found in order to optimise the work setting.

The complexity of the cognitive processes behind problem solving and decision making makes it hard to analyze an individual's performance with existing qualitative methods. Eye tracking, as a behavioral research tool, provides objective and unbiased insights into cognitive workload, and makes it possible to evaluate performance live, at any time, in the actual setting but without interfering.

The hypothesis

The comparison of eye behaviour between individuals with different experience levels, while performing the same task, can provide valuable insights for an employer as well as employees. Knowledge can be gathered both regarding the work setting (what can be optimized in order to better fit the process) and tacit knowledge (behaviour that are hard to convey or even identify can be found and shown when training new employees).

By conducting a small comparative study between three individuals performing the same tasks, we can collect data that provides insights regarding:

- differences in behaviour that indicates tacit knowledge that can be included in the training of new employees to lessen the learning curve and optimize performance
- differences in behaviour that indicate room for improvement for the work-setting
- differences in behaviour that indicate skill in technique that comes with experience

Implementation

We conducted the study during one day, collecting data from one expert and two inexperienced people conducting the same tasks. The setting was in a small brewery that uses traditional craft methods in a highly modern engineering work setting.

The employees wore Tobii Pro Glasses 2 while conducting the bottling process for 15 minutes each. This procedure was repeated two times each. During this a research manager from Tobii was present and ensured that the data collection was recorded properly.

Tasks

For 15 minutes, the bottling task is performed according to standard instructions. The activities are conducted when needed.

- put the bottles to be filled on the belt
- fold cardboard box
- fill cardboard box with filled bottles
- load filled boxes on pallet

The collected data was then analysed through Tobii's own data analysis process and presented in a report. For a more comprehensive method description, please see the report below.

Findings

Some very interesting findings were collected that can provide guidance for the brewery. The hypothesis was validated strongly when it comes to gathering insights and data that can be used as foundation for a revision in training of employees. Indicators that the work setting can be improved were also collected, but need some more in depth research. Why were the expert leaving the machine and spent valuable time inside the production area? Was the window not providing enough visibility, or did he do something critical that need to be discussed?

Key insights

- The expert spent 17% of his time away from the machine in order to inspect the production area. The less experienced spent no time away from the machine area.
- The expert had a special technique when putting new bottles on the conveyor belt, which saved a lot of time and allowed for other production enhancing activities without losing any output speed.
- The expert spent about ten times more time visually supervising the production through a window than the others

Assets

The report

For more in depth reading, you can find the report (in Swedish) [here](#)

Dataset

The dataset can be found [here](#)

Future considerations

The potential in data collection from visual wearables seems to be very high. From this project alone, a lot of otherwise unspoken and undefined issues were revealed. Discussing the findings with the experts can help turn tacit knowledge into explicit (and therefore actionable) knowledge.

As soon as humans need to make decisions based on visual input, there's trouble to understand why actions and decisions differ. This could be an invaluable tool to understand more.

Another exciting thing is to see what kind of new innovations can be created from the raw (and heavy) data. Is there patterns or discrepancies to be found that are hidden to the already done analysis? What can you discover and create from that?

Contact

Have questions? Want access to the videos? Please contact Caroline Ekstrandh at caroline.ekstrandh@arbetsformedlingen.se