

FIRE: Adding educational value to “it was hot”

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Local fire fighting instructors were very keen on a project that would help trainees understand their experiences while in the Real Fire Training Building (RFTB). This understanding would come from developing a Wearer Monitoring System. Wearer safety was the main focus of the project followed by ease of use and functionality.

One of the many issues that had to be overcome was finding equipment that could be used inside very hot environments (>300°C) such as the RFTB.

Monitors were attached to the trainees so that instructors could monitor their apprehension levels via visual and thermal monitoring. Sensors attached to a data logger were used to record skin temperature, heart rate, and external temperature. The information recorded could then be used for further debriefing outside the RFTB.



The software developed for the project is used to activate the data logger so that it starts to collect data. The user can also then start recording video from the Thermal Imaging Camera that is situated in the RFTB.

Exercises undertaken in the RFTB take place in pitch black conditions with very hot temperatures resulting in raised body temperature and heart rate. Data from these training exercises are downloaded onto a computer via the capture program developed by the group. The data is then transported to the Training Room where it is shown to the trainees. The video and data are synchronised and shown in real time and used as the basis of debriefing discussions.

In the Training Room captured data and video is shown to the trainees and their reactions are explained to them as they progress through the training exercise.



The project has become part of the Standard Operating Procedures already in place, enhancing safety features for training new fire fighters. The Thermal Imaging Capture side of the project was seen as being of particular value to fire-fighters.

By using the technology developed by this group, fire-fighting instructors can now view everything happening from a control centre outside the RFTB rather than actually being inside with the trainees. Using a monitor to view the data collected is a major safety feature that has been embraced by the Fire Department.

Client letter quote:

“To be able to show this at the debrief... has a very positive effect of reinforcing the application of both good technique and procedure. The feedback from other regions...is when will we get this?”

Keith Ferris, NZ Fire Service, Regional Training Officer