The technicians of the future use FLIR thermal imaging cameras

Industrial technicians of the future should use the most modern tools available on the market today. That is why the Göteborgs Tekniska College (Technical college of Gothenburg) uses a FLIR i7 thermal imaging to instruct its pupils in the use of thermography for maintenance inspections.

With half of the funds for the GTC coming from the government and the other half coming from Volvo, the college cooperates intensely with the Swedish car manufacturer. Housed right next to – and partly inside – the Volvo production and assembly plant in Gothenburg there is undoubtedly ample opportunity for the pupils to get hands on working experience, while Volvo gets a steady supply of well trained technicians in return. "I would definitely describe it as a win-win situation", says Johan Bengtsson, Group Leader of the GTC.

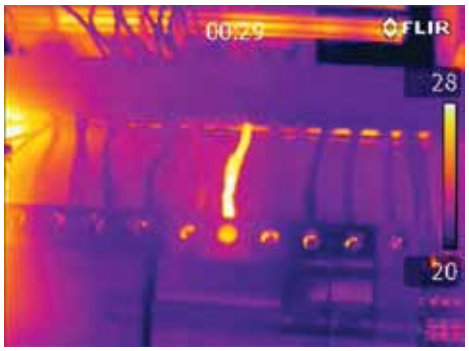
As a car manufacturer that strives to be one of the most modern and innovative producer of automobiles in the world, Volvo wants its technicians to be acquainted with all types of modern tools, with thermal imaging as one of the many options. "In my opinion it would definitively be a lack in the education of our pupils if we wouldn't include the possibilities and the handling of thermal imaging cameras in their curriculum", says Bengtsson.

According to Bengtsson his pupils say that they will definitely use a thermal imaging camera in their professional life as a maintenance technician. "They see thermal imaging as a great technology that can be used to detect a multitude of different faults in both electrical and mechanical components."

Easy to use

"And this particular thermal imaging camera model, the FLIR i7, is really easy to use", adds Bengtsson. "It requires a minimal amount of training to start working with this camera. After just a few lessons the pupils were able to start using the FLIR i7 thermal imaging cameras for basic tasks such as inspecting electrical cabinets."

"But that doesn't mean that you can just get a camera and start using it without any training whatsoever", adds Bengtsson.



This educational setup allows pupils to train in detecting faults and avoiding common pitfalls such as reflection.

The FLIR i7 thermal imaging camera is used to inspect many different devices.

The students are trained to distinguish between real hot spots and reflections.

Both mechanical and electrical components can be inspected with thermal imaging cameras.

"It is very important to know what you're doing, so we make sure that our pupils are thoroughly briefed on common pitfalls such as emissivity settings and reflections of other heat sources, such as their own bodies."

Reflection test setup

Three of the GTC pupils have taken that lesson one step further. "They have made a setup to demonstrate the importance of taking into account the reflection of heat sources on metallic surfaces", explains Bengtsson. "This setup includes a set of wires, with one wire that has a higher resistance, causing an increase in heat. The task is not only to detect the hot wire, but also to give an accurate temperature difference between the wire and its surroundings. In the setup there are two backgrounds. One background is black and has an emissivity close to 1.0 and the other is a reflective metal surface. The pupils that write down the temperature difference of the hot wire compared to the metallic surface haven't understood the briefing on reflection."

The pupils of the GTC are trained in a number of tasks including technical and mechanical maintenance and process automation.

"But the main goal for the pupils who made this setup was the process of actually making it", says Bengtsson. "They made this setup to show that they understood the briefing on thermal imaging and to demonstrate one way in which thermal imaging cameras can be used by maintenance technicians."

Pupils want thermal imaging

According to Bengtsson thermal imaging cameras will likely be used by more and more maintenance technicians in the near future. "The GTC pupils I've spoken to all said they would definitively want to have a thermal imaging camera as a fault detection tool when they have finished their education here and started working as maintenance technicians. And with the recent developments in thermal imaging camera affordability I really don't see any reason why they wouldn't have a thermal imaging camera at their disposal."

"In the not so distant past thermal imaging cameras used to be out of reach budget wise for the average maintenance technician or electrician", explains Bengtsson. "In recent years new developments in thermal imaging technology have led not only to astounding improvements in camera quality, it has also led to the arrival of more affordable models on the market, with as the current champions of affordability the FLIR i3, i5 and i7 thermal imaging cameras."

The advantages of thermal imaging

According to Bengtsson the FLIR i7 thermal imaging camera has an adequate image quality for many applications. "You can use it to check fuse cabinets, wiring, electromotors, conveyor belts and such, but also to inspect buildings and for many other applications. If you compare it with some other types of equipment, such as spot pyrometers, than the thermal imaging camera definitely has the advantage. Unlike spot pyrometers, which can only give you a number, thermal imaging cameras give you an instant view of the situation. This reduces the chance of missing a fault and drastically increases inspection efficiency."

FLIR offers a wide variety of thermal imaging cameras, from the affordable entry models such as the FLIR i7 thermal imaging camera used by the staff and pupils at the GTC to the high end thermal imaging cameras for industrial maintenance such as the FLIR P660 thermal imaging camera. "I think thermal imaging cameras will be used a lot more by the new generation of maintenance technicians, like the ones we train here", says Bengtsson. "With the recent developments in quality and affordability I think it's only a matter of time until a new generation of maintenance technicians in all sorts of businesses all over the world will embrace this useful tool and include it in their standard equipment."

For more information about thermal imaging cameras or about this application, please contact:

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