

Emitted Energy

Enhancing Machine Vision with Thermal Imaging



ROY RAY,
VP

With the introduction of night vision devices (NVDs) during World War II, thermal imaging technology marked its debut and soon became a pivotal part of military devices. Today, thermal imaging technology finds a variety of applications in different sectors. From law enforcement and firefighting to industrial process monitoring—thermal imaging cameras have turned into an invaluable tool for providing low-light visibility. Given its rate of success, thermal imaging is now increasingly being used in the manufacturing domain to demonstrate its fringe benefits in enhancing the capabilities of machine vision solutions.

At the forefront of offering this upgraded machine vision solution is Emitted Energy, FLIR Systems' premium automation technology partner and certified system integrator. The company showcases its uniqueness in the marketplace by providing a cutting-edge machine vision solution that utilizes forward-looking infrared (FLIR) cameras to help businesses with superior quality inspection and better supervision of manufacturing processes through automation.

In an interview with CIO Applications, Roy Ray, VP of Emitted Energy, elaborates on how the company brings

a world of difference to machine vision with the help of thermal imaging technology.

How is Emitted Energy modernizing the machine vision landscape?

Machine vision is used widely for monitoring manufacturing issues on a production floor. A conglomeration of a large number of technologies, software and hardware products, and integrated systems, machine vision is primarily implemented for image-based automated inspection of a manufacturing facility. However, the technology often fails to perform to its fullest potential in low-light conditions, and where lighting effects cause unwanted shadows and color blending. That is where thermal imaging technology exhibits its significance to improve machine vision solutions. Thus, we started integrating FLIR cameras—typically used on military and civilian aircraft—with machine vision solutions to drive greater value for a manufacturing facility's quality assurance operations.

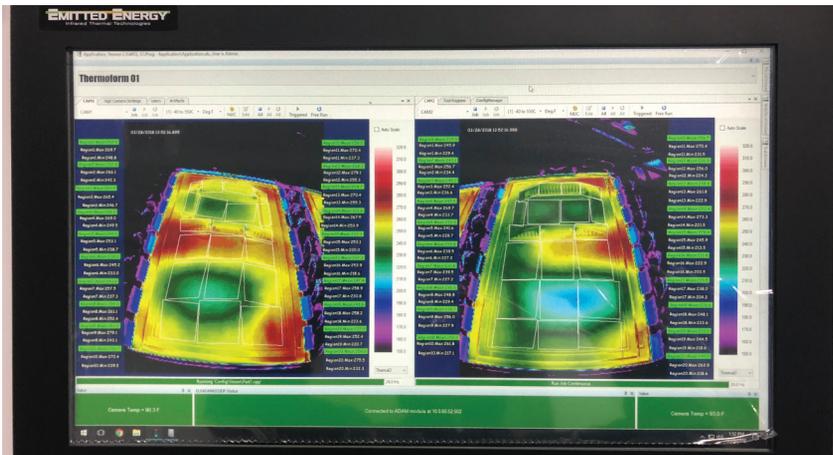
From providing top-quality industrial thermal imaging products and accessories, such as FLIR automation cameras, heater banks, and quartz IR emitters, to offering turnkey industrial automation solutions for quality inspection, condition monitoring, and more, we are a one-stop shop for organizations seeking cutting-edge end-to-end machine vision solutions.

Could you take us through the industry pain points that Emitted Energy addresses?

A long-standing challenge that we have observed in the industry is that most businesses do not have a good understanding of how their equipment is performing on the production floor. The problem only intensifies when a particular part of the equipment stops functioning, or inconsistent assembly and processing causes unwanted scrap impacting productivity. Our thermal imaging-based machine vision solution aims to mitigate those challenges by constantly tracking the performance of the equipment using intelligent IR sensors. Later, making use of the data collected from the sensors, we automate the decision-making processes, thereby helping production managers reduce their operational dependency on manual labor to monitor the equipment.

Could you elaborate on the key features and functionalities of your offerings?

We offer a complete process monitoring solution called Thermal Process Monitoring System (TPMS). The solution utilizes integrated thermal imaging toolsets, coupled with machine vision software, process automation software, and analytics modules to communicate with the machinery at every stage of the product lifecycle, gaining control of the entire process



and preventing unwanted issues and reducing wastage of scrap.

Depending on the specific needs of an organization, we have designed three variants of our TPMS solution. First is our fully-integrated system, wherein we deploy a comprehensive TPMS solution. Second, we have a compact, travel-size version of the solution that adds flexibility and can be used in preproduction analysis scenarios. Lastly, we have a versatile TPMS that is designed to offer the best of both worlds (compact and the integrated TPMS systems), allowing the TPMS to connect to multiple machines and assembly equipment. Each of our TPMS solutions are productized for the application (E.G. TPMS for Plastic Joining, TPMS for Adhesive Inspection, TPMS for Injection Molding, TPMS for Thermoforming, TPMS for Early Fire Detection , etc.).

What drives Emittted Energy's growth in the machine vision landscape?

At an organizational level, we are persistently striving to grow and achieve greater goals. The motto of our company: "our people, our quality, our support, our solutions," constantly guides us to leap ahead. We invest a considerable amount of our time and effort in our people constantly with a view to enhance their domain knowledge to formulate our long-term growth strategy. At the same time, we also involve ourselves in numerous

researches to innovate our solutions portfolio. Above all, we are a customer-focused company and continuously seek to build a deep-seated connection with our customers through our 24/7 support system.

Could you share a client success story with us?

We recently partnered with Yanfeng Automotive Interiors to optimize their quality assessment and monitoring practices for the production of defroster grills that would be used in Ford Escape vehicles. Yanfeng was already using a relatively new technology, IR welding, for building parts of defroster grills. Known for their best-in-class product offering, Yanfeng needed a solution that could help them eliminate a lengthy manual inspection process. To leverage the power of thermal imaging

and automate the quality assessment, Yanfeng approached Emittted Energy. After a thorough understanding of Yanfeng's pain points, Emittted Energy implemented a TPMS, so that Yanfeng could evaluate the weld quality by measuring thermal profiles on the weld line ensuring consistent heating for optimum welding. In combination with thermal imaging cameras, Emittted Energy also used analytics to decipher the upper and lower limits of permissible temperature for welding and automated the entire quality assessment process. As a result, Yanfeng improved their product quality evaluation and ensured a faster response time for process failures.

What does the future hold for your company?

For the future, we are analyzing the trends in process monitoring and automation from three verticals—automotive, consumer products, and the healthcare industry. These are the three domains that heavily invest in sensors and machine vision technologies to stay competitive. To understand the fundamental technology trends in those markets, we also frequently have conversations with industry thought leaders and key persons from Fortune 100 companies like Procter & Gamble, SRG Global, FCA, Ford Motor, and others. Together with that, we are constantly integrating different notification systems to ensure that the floor managers are alerted immediately in case of a process failure. To be in line with that plan, for the next few months, we are going to invest in building integrated solutions that help us deliver better manufacturing process outcomes and reduce the number of manual quality inspections. Lastly, as a company, we are always motivated to treat our suppliers and customers alike—as members of our team. Our goal is to make continuous progress and lead the way through innovation while maintaining a rewarding working environment. **CA**