

News Release

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Startup from Innovation Lab of Merck KGaA, Darmstadt, Germany, in Israel Markets First Predictive Maintenance Sensors

- **First commercial product by Feelit successfully printed and tested**
- **Printed electronics to monitor industrial production processes**
- **Merck KGaA, Darmstadt, Germany, innovation lab PMatX in Israel is focusing on next-generation electronics**

Darmstadt, Germany, June 23, 2020– Merck KGaA, Darmstadt, Germany, a leading science and technology company, today announced the first commercial product from [Feelit](#), based in Haifa, Israel. Feelit is an Industry 4.0 startup that was part of the PMatX innovation lab of Merck KGaA, Darmstadt, Germany, for next-generation electronics in Israel. RetroFeel™, the company's first product, combines a wireless edge device and a printed nanotechnology sticker sensor that detects structural changes in mechanical parts and systems and is able to predict upcoming failures. This sensing solution is applicable in process industries such as pharmaceuticals, food and beverage, oil and gas as well as semiconductor manufacturing.

"Our product works – it was found valuable and was checked by Merck KGaA, Darmstadt, Germany, a leading pharmaceutical manufacturer," said Gady Konvalina, CEO of Feelit. "The remote 'over the shoulder' installation approach we developed during the Covid-19 crisis also works. With our on-line training and support our customers installed the sensor themselves and then just used it to monitor the production equipment operations and integrity."



News Release

Employees of Merck KGaA, Darmstadt, Germany, who were the first to apply and use the sensors in production, said: "We use the printed sensors to measure pressure and temperature in processes with sterile or aggressive substances where we want to avoid contact with the process media. In addition, we use Feelit's sensors in the context of diaphragm valves to identify a failure of the diaphragm before rupturing to avoid chemical or biological spills."

Having successfully completed two pilot trials using the nanomaterial-based sensors to monitor production equipment, Feelit started sales of its product and is performing additional trials worldwide. The sensors are externally attachable in minutes and easy to connect to software.

Feelit has a multidisciplinary team and works in the industrial Internet of Things field. It provides structural sensing that can turn any object into a smart object. The company has made significant progress since joining the Merck KGaA, Darmstadt, Germany, program in Israel, making full use of the facilities, mentoring and commercial co-operation available. Feelit ramped up production of its RetroFeel sensors on the semi-industrial inkjet printer in PMatX. Production was increased from a few sensors per day to hundreds of sensors in one day, making use of the scalability of the printing process. After its first year of operation, Feelit signed a service agreement with the PMatX innovation lab to continue the production of more sensors for commercial purposes. The company plans to produce thousands of sensors in the next two years with plans to scale up significantly by 2024.

Feelit was the first company to join the [PMatX](#) innovation lab in Israel, led by Merck KGaA, Darmstadt, Germany, and run by [M Ventures](#). The formation of PMatX, which focuses on next-generation electronics, was supported by the Technology Innovation Lab program of the Israel Innovation Authority (IIA).

The PMatX innovation lab, located adjacent to the the research & development site of Merck KGaA, Darmstadt, Germany, in Yavne, Israel, is currently hosting two more startups (medication adherence startup Pilltracker and computational imaging startup PxE). Yavne is also home to the Healthcare and Life Science BioIncubator, which has successfully been in place since 2011.

News Release

Merck KGaA, Darmstadt, Germany, is an active player in Israel's innovation ecosystem. The company employs more than 300 people in Israel, mainly scientists, and has sites in Yavne, Herziliya, Rehovot and Jerusalem. All three of its business sectors, Healthcare, Life Science and Performance Materials, have R&D sites in Israel.

About Feelit

Feelit™ Technologies has developed [RetroFeel™](#), a unique nanomaterials based product that senses structural changes in mechanical parts and systems and indicates on up-coming failures. The company's nanoink is printed on a flexible sticker that is glued to equipment, becoming an "electronic skin" capable of sensing the object's structural state and material changes in real time. RetroFeel can detect and analyze structural state changes in any material, thus predicting critical problems in advance and preventing downtime, energy loss, and maintenance costs, as well as enabling significant savings by improving yield.

About M Ventures

M Ventures is the strategic, corporate venture capital arm of Merck KGaA, Darmstadt, Germany. Its mandate is to invest in innovative technologies and products with the potential to significantly impact the company's core business areas. From its headquarters in Amsterdam and offices in the US and Israel, M Ventures invests globally in transformational ideas driven by great entrepreneurs. M Ventures takes an active role in its portfolio companies and teams up with entrepreneurs and co-investors to translate innovation towards commercial success. M Ventures has a significant focus on early stage investing and company creation including the creation of spin-offs to leverage the company's science and technology base. For more information, visit www.m-ventures.com.

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About Merck KGaA, Darmstadt, Germany

Merck KGaA, Darmstadt, Germany, a leading science and technology company, operates across healthcare, life science and performance materials. Around 57,000 employees work to make a positive difference to millions of people's lives every day by creating more joyful and sustainable ways to live. From advancing gene editing technologies and discovering unique ways to treat the most challenging diseases to enabling the intelligence of devices – the company is everywhere. In 2019, Merck KGaA, Darmstadt, Germany, generated sales of € 16.2 billion in 66 countries.

The company holds the global rights to the name and trademark "Merck" internationally. The only exceptions are the United States and Canada, where the business sectors of Merck KGaA, Darmstadt, Germany operate as EMD Serono in healthcare, MilliporeSigma in life science, and EMD Performance Materials. Since its founding 1668, scientific exploration and responsible entrepreneurship have been key to the company's technological and scientific advances. To this day, the founding family remains the majority owner of the publicly listed company.