



To be issued by Communications Office

Date of issue:

Last revision: 15/12/2022

Number of words: 324 words

Maltese Engineers file innovative patents in cooling technologies

Alternative: Local engineers file multiple patents for innovations in cooling

A local team of engineers based at the University of Malta have successfully concluded the process of filing patents to protect leading-edge inventions powering the R&I initiative dubbed [ICECAP](#).

[ICECAP](#), an acronym for Thermo-Electric Cooling for Electronic Systems applications, is a project spearheaded through partnership between the [Department of Electronic Systems Engineering](#) at the University of Malta and local manufacturing company [New Energy Ltd](#). This project seeks to introduce novel technologies in the market of electronics cooling through its research. Originally intended to bolster the performance of imaging and high-performance computing, the technology being developed is now lending itself to be applicable in instrumentation, telescopes, industrial settings and cold-chain [medical transportation](#).

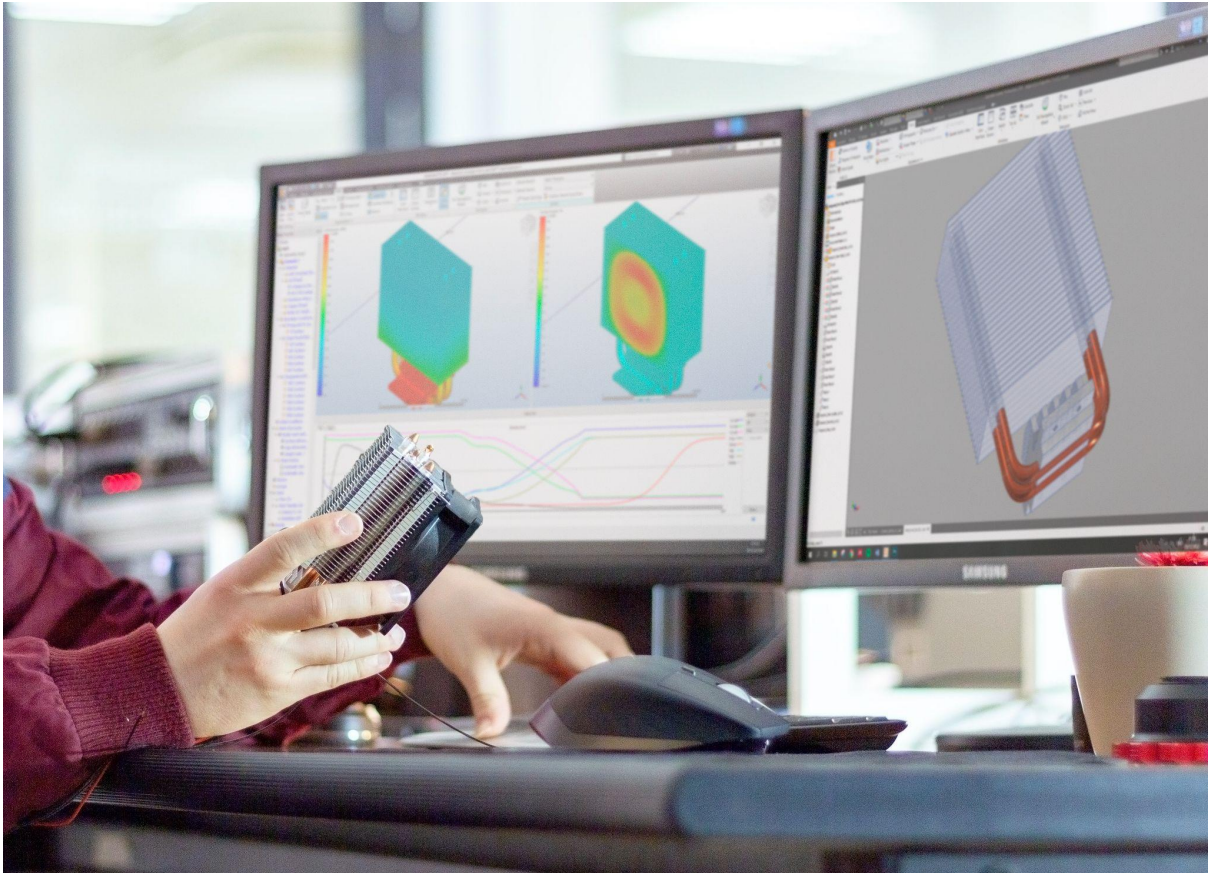
“The results obtained were very promising, so much so that two patents were filed to cover all proprietary techniques” said Andre Micallef, principal investigator of the project. These describe innovations that enable ICECAP technology to efficiently sustain temperatures in excess of -40°C , whilst being small enough to fit within electronic products. This is possible through the development of a novel optimisation algorithm that greatly improves the efficiency of Peltier devices. The second patent describes various thermal isolation techniques, further establishing its applicability within the embedded electronics industry .

The team will now press on with the development of a commercially available off-the-shelf electronic module suitable for industrial environments. This will allow for rapid integration into existing systems, making full use of the innovations developed. “We’re developing the technology with industry in mind to ensure that the off-the-shelf product is respecting the clientele’s needs and limitations.”, commented Alec Fenech, the engineer leading the contributions from the private partner. Such cooling technology can lend itself to improving manufacturing processes and systems integration on both a local and international scope.

[ICECAP](#) (MCST R&I-2018-035T) is supported by €200,000 in funding covering a three-year period of development thanks to the Malta Council for Science & Technology through FUSION: The R&I Technology Development Programme.



FUSION R&I Technology Development Programme 2020



A consortium by:



L-Università ta' Malta
Faculty of Engineering



New Energy Ltd