Quantum Motion are building the world's most powerful computer in North London

Using silicon chips and 'fridges' that are 100 times colder than outer space, Quantum Motion is attempting to build the world's most powerful computer.

Temps de lecture : minute

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Led by academics from UCL and Oxford University, the company is leading a wave of technology and science innovation by opening the largest independent quantum computing lab in the UK. The lab is a multi-million pound investment, backed by funding from the UK government and venture capital, and will employ 25 full time staff, including quantum theorists, physicists, and Integrated Circuit engineers.

"_Islington_ is officially now the coolest part of London," said James Palles-Dimmock, COO of _Quantum Motion_. "We're working with technology that is colder than deep space and pushing the boundaries of our knowledge to turn quantum theory into reality. Our approach is to take the building blocks of computing – the silicon chip – and demonstrate that it is the most stable, reliable and scalable way of mass manufacturing quantum silicon chips."

The lab will use specially configured dilution refrigerators to cool the quantum chips to near absolute zero (minus 273 degrees Celsius), allowing them to work as quantum computers.

A quantum computer has unique powers to model the natural world at an atomic and subatomic level. As such, Quantum computers could be more powerful than today's supercomputers and capable of performing complex calculations that are otherwise practically impossible.

Theo Blackwell MBE, Chief Digital Officer for London, opened the Quantum lab and said that "quantum computing represents one of the most exciting emerging technologies we are seeing in our city. In the future, we hope that the power of quantum computing will be able to solve problems faced by people across this city and elsewhere, such as looking for solutions to pollution and air quality, to transport congestion and beyond."

"Quantum bits really change the way a computer is able to think," said Simon Benjamin, co-founder of Quantum Motion and professor of quantum technologies at Oxford University. "Problems that would take a supercomputer thousands of years to crack could be solved by a quantum computer in minutes. Our goal is for quantum computers to be accessible to everyone and that means making it faster and cheaper to manufacture the millions of quantum bits that we need to build into end-devices."

Quantum Motion was founded in 2017 and has raised almost £20M in equity and grant funding, with venture backing from INKEF, IP Group, NSSIF, Octopus Ventures, Oxford Sciences Enterprises and _Parkwalk Advisors_. In 2021, the Quantum Motion team made a breakthrough discovery that proved quantum computers could be built using standard silicon chips, like those found in any smartphone or computer.