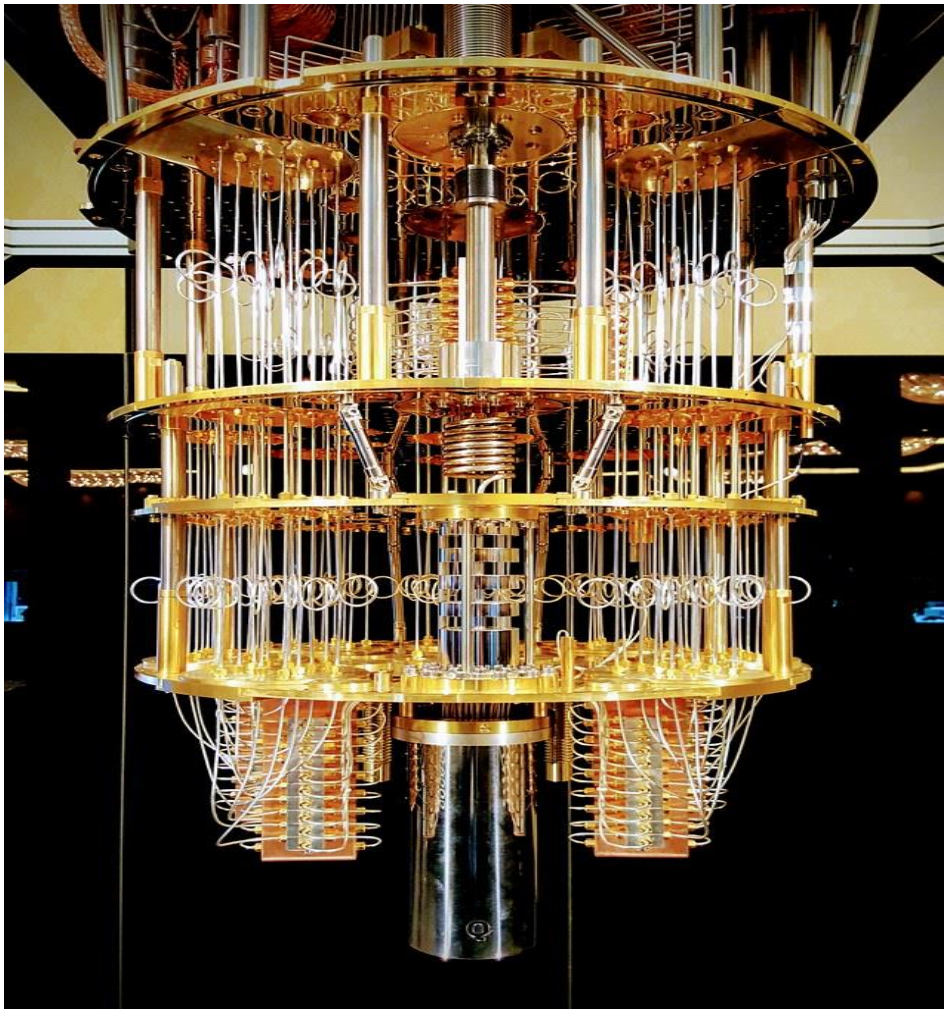
Quantum Computer



An IBM quantum computer

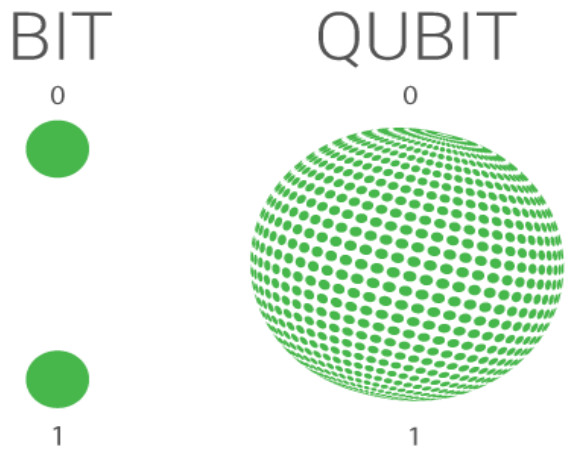
World of computers and technologies always surprise everyone!!!!!!!.....
All are look forward for new technologies developing. One of them is Quantum computing. IBM unveils its first commercial quantum computer, the IBM Q System One, designed by UK-based Map Project Office and Universal Design Studio and manufactured by Goppion.

I think 40 years from now, kids will look back at these giant quantum computers the same way we look the old classical computers that needed a whole room.

Conventional computers store data as “bits” with value 1 or 0, in quantum computing data is stored as “qubits” which can hold more than one value at the same time. In other words, Qubits can be both one and zero at the same time

Quantum physics, one of the most successful theories of modern science which describes the way our world works at the most fundamental level. Quantum Computing has become one of the leading applications of quantum physics. Quantum computers have the potential to solve some of the world's most complex problems that are beyond the reach of even today's most powerful supercomputers. Quantum computers are not going to replace classical computers. But they're radically different way of operating enables them to perform the calculations that classical Computing cannot.

Classical computers encode information in bits and each bit can represent a zero or a one. These zeros and ones act as on-off switches that ultimately translate into compute functions. To perform a simple calculation like solving a maze a classical computer would test each possible route one at a time to find the correct one.
Just as classical computers have bits, quantum computers have Qubits. **Qubits** use two key principles of quantum physics, **Superposition** and **Entanglement**.
Superposition means that each qubit can represent 0, 1 or both at the same time.
Entanglement happens when two qubits in a superposition are correlated with one another, meaning the state of one, whether it is 0, 1 or both which depends on the state of another.



Using these two principles qubits can act as a much mor e sophisticated version of switches helping quantum computers solve difficult problems that are virtually impossible using classical computers.
To illustrate how this makes quantum computers more powerful, take a classical and bit computer with ‘n’ representing the number of bits, it can represent and examine only one system State at a time. An ‘n’ Qubit computer would have the power to represent 2 ^ n system

States and perform parallel operations on all those States at once. This means that every time addition of one more qubit to a quantum computer, the number of states it can represent and examine doubles. So, 50 Qubit Quantum machine could examine 2 ^ 50 states at once. This exponential increase in power together with the entanglement of qubits is what allows quantum computers to solve certain problems much more efficiently, while a classical computer solves a problem like the maze by testing each possible route one at a time. A quantum computer uses its entangled Quantum states to find the correct route quicker with far fewer calculations.

Technologies that currently run on classical computers can expertly find patterns and insights buried in vast amounts of existing data. But quantum computers will deliver Solutions where patterns cannot be seen because, sufficient data does not exist or the possibilities for discovering an optimal answer are too enormous to ever be processed by a classical computer.

Quantum computers could lead to the discovery of new medicines and materials by helping us untangled the complexities of molecular and chemical interactions. They could help the financial services industry make better Investments by finding new ways to model financial data and isolate key Global risk factor. They could even transform supply chain and Logistics by finding the optimal routes across Global Systems like, Optimizing Fleet operations for deliveries during the holiday season.
Quantum Computing won't replace our everyday computers and smartphones. but its ability to solve complex problems will open a new universe of information. Also, transforming Our view of the world and the way we navigate it.