



Protecting IoT in India with IP - Current Trends and Future Needs

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The Internet of Things (IoT) refers to billions of physical devices around the world that are connected to the internet and share data with each other. As the name implies, IoT refers to devices that traditionally may not have internet connections but can become 'digitally intelligent' when connected to the network without human intervention.

Today, anything can potentially be an IoT; a lightbulb that can be operated via a smartphone app, smart meters that can monitor and record electricity consumption, or even a driverless car. On an even bigger scale, smart city projects fill entire regions with different types of sensors to monitor and even control the environment.

Kevin Ashton who coined the phrase 'Internet of Things' in 1999, describes IoT as "The IoT integrates the interconnectedness of human culture -- our 'things' -- with the interconnectedness of our digital information system -- 'the internet.'

The IoT future is everywhere

There are already more connected things than people in the world. And as IoT merges the digital and physical universes further, the scope of IoT is only getting bigger. A McKinsey report predicts IoT as among the top 10 technologies that will shape the next decade.

IoT will play a key role in industries like healthcare, smart home/smart city automation, automobile & manufacturing sector, power management, security, metaverse, space systems, etc. Top-tier companies like Google, SpaceX, One Web, and Meta (formerly Facebook) are also investigating the use of IoT devices along with low-cost satellites to provide earth monitoring, disaster prevention, and connectivity in remote areas instead of using conventional low earth orbit (LEO) satellites.

The report estimates that this shift will probably generate between \$1.2 trillion to \$2 trillion for the global GDP by 2030, largely in developing nations.

Technological growth needs IP protection

However, to truly ensure market leadership and profitability, IoT inventions need to be secured by a carefully curated selection of Intellectual Property (IP) rights which ensure protection, exclusivity, and a competitive edge in markets.

Along with industry growth, India has seen a significant increase in IoT patent filings in recent years. According to a recent study by NASSCOM, approximately 5,000 applications in the IoT domain were filed between 2014 and 2019. However, patenting these technologies comes with a few challenges.

Complexities of patenting IoT in India

The foremost challenge in patenting IoT-related inventions is ascertaining if the invention is eligible for patent protection. Since IoTs integrate multiple computer-related technologies like real-time data analytics, Artificial Intelligence/Machine Learning, embedded systems, sensors, smart devices, etc., IoT inventions run the risk of

being categorized as mere computer program or software or abstract idea that does not qualify for a patent – this is a global conundrum.

For instance, in the US, various decisions by its Supreme Court, the United States Patent & Trademark Office (USPTO), and the US Federal Circuit have indicated patent ineligibility of abstract ideas. As per a landmark ruling of the US Supreme Court, the concept of “abstract idea”, is well-understood, routine and conventional and abstract ideas are not eligible for patenting even if they are implemented on a computer using advanced technologies. Additionally, the USPTO guidelines for patent examination indicate that an applicant must showcase technological improvements in an IoT technology, as compared to existing computing technology, to make the invention patent eligible.

India has a more dynamic view of what qualifies for patentability. Section 3 of the Indian Patents Act, 1970 (the Act) enlists inventions that are not eligible for patenting. Section 3(k) of the Act prohibits patentability of inventions that include *"a computer program per se"*, where the term "per se" is vague and undefined. The Joint Parliamentary Committee (JPC) set up while introducing the Patent (Amendments) Act, 2002, amended section 3(k) to introduce the term *"per se"* and stated that: *"This change has been proposed because sometimes the computer programme may include certain other things, ancillary thereto or developed thereon. The intention here is not to reject them for grant of the patent if they are inventions. However, the computer programmes as such are not intended to be granted patents. This amendment has been proposed to clarify the purpose."*

Keeping the intention of JPC in mind, the Indian Patent Office (IPO) based and published their final guidelines for the examination of Computer Related Inventions (CRIs) in 2017. These guidelines established several tests for determining patent eligibility of computer-related inventions to distinguish genuinely patentable inventions.

A classic example of this evolving approach was demonstrated in a Delhi High Court (DHC) landmark judgement, in 2020, in *Ferid Allani v. Union of India*. In this matter, both the IPO and the erstwhile appellate authority, Intellectual Property Appellate Board (IPAB), rejected Ferid Allani's patent application for a computer program. The appellant, Ferid Allani, filed a writ petition in the DHC against IPAB's order. The DHC held that *"if the invention demonstrates technical effect or technical contribution, it is patentable despite being based on computer programmes."* The DHC further added that the bar on patenting is only on 'computer programs *per se*' and not on all inventions based upon computer programs, thus re-emphasizing JPC's intent not to reject patents for computer programmes if they have additional elements like technical effect or technical contribution. The DHC then directed the IPO to re-examine the patent application and eventually, the patent was granted.

Key to patenting IoT

Protection of an invention is limited by claims of the patent that define this invention. Key consideration while patenting an IoT is ideally to seek protection for fewer but essential and unique features or limitations of the invention. As IoT technology can be industry agnostic, writing a broader claim without restriction to any industry can provide better coverage against any infringement of the invention.

Another significant challenge is to determine the appropriate type of patent claim combinations, such as method, device, and system claims. More so, since IoT inventions are a combination of IoT devices, processes/software implemented by these devices, and systems. It is always helpful to understand the company's business model to determine claim combinations that protect a patent holder from market competition and increase revenue generation. Having said that, one also must make sure that each independent claim will at least pass the test of novelty, i.e., an invention that is not known to the public.

Further, patent claims must also be able to assert against the potential infringers, to ensure that the patent owner can enjoy their 'fruit of labour' and thereby, have market dominance. Patent enforcement reaffirms the patent owner's rights and compensates the loss incurred to the patent owner if there has been an infringement of technology.

Especially in IoT's case, since it's an amalgamation of multiple devices and systems, proving a multi-party infringement of a patent is probably a challenge since chances are that each of these devices might be made, sold, or used by different parties/entities. For example, a patent claim for an IoT technology may include camera sensors, a data collection module, a data transceiver, and a processing unit. To mitigate this issue, it is recommended that patent claims are drafted from the perspective of only one device in the IoT system, provided that the device is novel and patent eligible.

To sum it up, to ensure that IoT receives patents, they must be drafted carefully so that they are patent eligible, cover a reasonably broad scope, aid in asserting patent infringement against potential infringers, and ultimately motivate innovation in this space.

Addressing lacunae in patent laws for a flourishing IoT industry

As said earlier, the IoT industry is expanding in India. As per IPO's last annual report, around 45% of patent applications filed in 2019 – 2020 related to CRI inventions, including IoT. This industry is forecasted to grow to around 1.6 trillion by 2025, a golden opportunity for India, which stands at the cusp of innovation and technological progress. Therefore, there is an urgent and imperative need for the Indian patent law to evolve and expand its understandings and thereby boundaries to accommodate the growing need for protecting CRIs like IoTs. This would allow the IoT sector to attract more investments and inventors of new technologies and promote industry development, enabling India to climb further in the value chain towards long-term innovation.

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