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We are working towards maximizing the use of IoT solutions

— **Udaya Bhaskar Rao Abburu,** CEO & Managing Director, iRam Technologies

iRAM is a product development and technology company offering advanced solutions based on IoT. The products and solutions from iRAM are specially designed to make urban living more convenient, aligned with the government's Smart City initiative. iRAM's solutions are home grown, developed in their manufacturing facility in Bangalore. We have **Udaya Bhaskar Rao Abburu** discussing the fundamentals of IoT and explaining why it is expected to grow tremendously in India, across various industries. An interview by **Venugopal Pillai.**

We keep encountering the term Internet of Things, better known as "IoT". How can one define or explain IoT in simple terms?
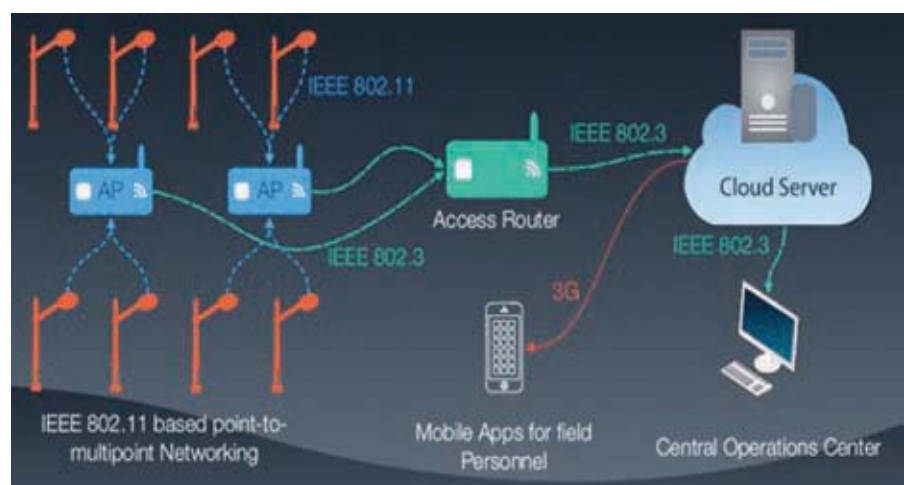
Internet of Things (IoT) in simple terms refers to all the things in the world and connecting them to the internet while being monitored, secured and managed. The main feature of IoT platform is to manage and capture data from all the connected devices and send their data to larger enterprise ecosystem. When something is connected to the internet, it means that it can send or receive data. This ability to send or receive data makes things alive and smart.

The embedded technology in the devices helps them to interact with internal or the external environment, which in turn affects the decisions taken. These devices can be controlled from anywhere. This connectivity can help organizations to capture more data from more places which in turn ensures more ways of improving safety and IoT security.

In general, how do you see the scope for IoT in India? What is the current level of IoT penetration in the country?

The Indian IoT market has huge potential and is expected to grow across industries like automotive, transportation, manufacturing, logistics, etc. IoT is set to become a major differentiator in driving

NextGen products and services. According to a Deloitte NASSCOM study, the IoT market is expected to reach $9bn by 2020. By the end of 2020, more than 1.9 billion devices are expected to be connected in India which will lead to grow this market 31 times from the current size.

In India much innovation is happening around IoT, across different verticals and industries. IoT is mainly driven by three players — government, industry and startups. India is making progress and we have exciting years to look forward to in terms of adoption and implementation of this technology. The synergistic working of industry, government and startups will drive the ecosystem to new heights.

Please orient us in brief about your street lighting products, like smart pole, etc.

We have developed smart poles that help increase urban efficiency while reducing energy costs. They also help solve many urban problems due to their ability to incorporate sensors, software controls, environmental monitors, street lights and electronics that receive and transmit data to our data centre.

Our solution is based on an integrated and modular IoT architecture that allows city scale end devices to be monitored and controlled from a remote command control centre (CCC). It provides real-time data to the city offices, thus enabling them to take proactive and quick decisions.

In an IoT-based smart street lighting system, the lighting failures are automatically reported by the system and can be retrofitted; no wiring is required. Lights can automatically dim depending on the time of the day as well as the human presence detection. Smart lightings have real time energy and parameters measurement.

Smart poles operate on a highly secure system that prevents and alerts thefts. It is especially designed from ground-up for Indian roads and conditions. There are multiple cut outs on the pole which helps the third-party equipment to host on the pole. It also offers flexible networking option for equipment by allowing the use the same network or the users' own. These poles have automatic temperature management within the enclosure and the enclosure can be placed either on

the ground or under the ground. The smart luminaires on the smart pole can use existing smart lighting network infrastructure or its own network for communication to the command centre. These devices can be located on various map sources including Google Maps with hierarchical browsing.
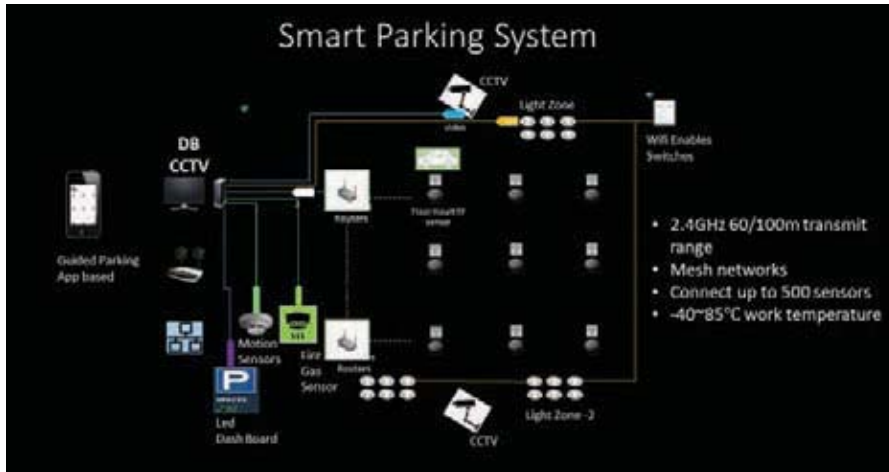
We also understand that iRAM has smart street solutions. How do you combine the two as a service?

iRAM's solutions are homegrown, developed at the company's manufacturing facility in Bengaluru. We have successfully deployed the solution in various smart city projects and municipal corporations across India.

Besides smart poles and smart lightings solutions, we also offer smart parking systems and smart environment solutions.

Who forms your current clientele?

We have partnered both with big public and private players who are in the deployment of smart city solution. City municipal corporations, as well as big public and private sector companies in the smart city space form our clientele.

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What is the estimated energy saving that could arise from the use of iRAM street lighting solutions?

The approximate energy saving that one can save from the use of iRAM street lighting solutions is 65-70 per cent depending on solutions that are deployed.

Central government agencies like EESL are promoting LED-based street lighting through programmes like SLNP. Do you think that iRAM solutions could further improve energy efficiency?

Yes, we can further improve energy efficiency. Our smart lighting system consists of energy efficient LED luminaire with built-in LED driver, light controller and sensors. The street light automatically switches on/off or dims, based on the inputs from the built-in sensors. These lights can also be controlled through policies set for any day in a year or manually on an ad hoc basis. The smart lighting system provides various statistics and analytics in real-time that help organizations to detect equipment faults, electric leakages etc so that they are addressed immediately. It also provides potential energy savings that could be achieved by using a different lighting policy.

The street lights can also communicate to the lighting software at the data centre through the gateways that are installed on various street light poles. The number

of gateways that are required for a given set of street lights depends on the presence of any obstructions like trees between the light poles and the number of end devices that are present on a pole.

India has ambitions to develop 100 smart cities through its Smart City Mission. Do you feel that IoT-based street lighting solutions could form a component of the power grid of such smart cities?

Street lighting is an important component of power consumption worldwide. India is no different. Global trends in street lighting show that 18-38 per cent of the total energy bill goes towards street lighting and therefore this is one domain that needs major attention. If we look at improving efficiency of power consumption with an objective of saving energy, IoT enabled smart lighting systems are a huge improvement over the traditional system. Hence the future of the IoT based product's market seems quite promising and the industry's prospects will remain bright and it will further grow as well.

How has been iRAM's journey been so far and how do you the years ahead look to you? What do you regard as your main business growth drivers?

The experience and the journey has been incredible so far. We are continuously developing products that are smart while also being cost and energy efficient. It is time for us to leverage IoT, AI and other technological tools will help to build new smart cities and transform the existing ones to unleash their true potential, and more importantly to improve the living standards of city dwellers. Connected technologies like smart sensor networks, smart poles, smart parking and IoT are crucial to smart city living and are likely to witness wide scale implementation in the coming years. IRAM is working relentlessly on AI solutions to maximise the usage of IoT solutions by providing effective utilisation of resources. IRAM has well defined roadmap, and apart from IOT innovation, will focus on newer and fast evolving technologies, mainly AI and blockchain. ∎