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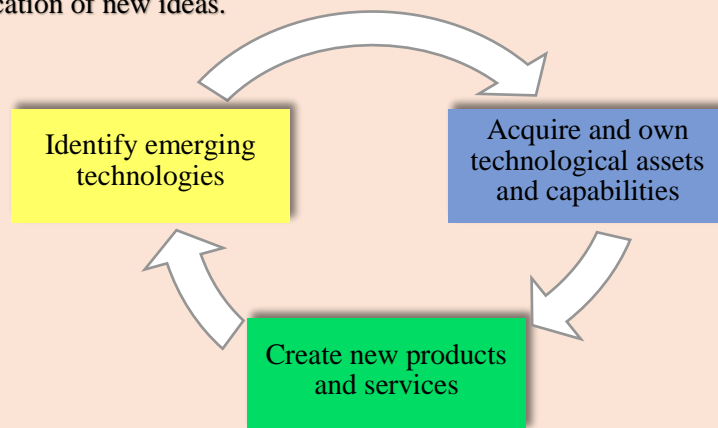
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## National Institute of Industrial Engineering (NITIE)

National Institute of Industrial Engineering (NITIE), established in 1963 by the Government of India. It is one of the leading Institute for Industrial Engineering and Management education. The institute offers five programmes at post graduate level- Post Graduate Diploma in Industrial Engineering (PGDIE), Post Graduate Diploma in Industrial Management (PGDIM), Post Graduate Diploma in Industrial Safety and Environmental Management (PGDISEM), Post Graduate Diploma in Manufacturing Management (PGDMM), Post Graduate Diploma in Project Management (PGDPM). In addition NITIE offers Post Graduate Program for Executives – Visionary Leaders for Manufacturing (PGPEX-VLFM) and Fellow (Doctoral) Programme too.

## Centre for Technology and Innovation Management (CTIM)

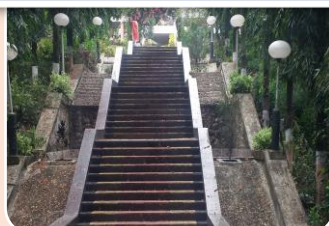
Centre for Technology and Innovation Management (CTIM), was established in 2015. CTIM bridges “Engineering” and “Management” through focussed research, serves as a platform for collaborative research and development. It also provides an opportunity for practical application of new ideas.



## CTIM focuses on three key dimensions through-

- Identification of technology and innovation opportunity
- Implementation of technology
- Commercialization of technology

## Current Innovation Projects



**Project89-Transforming the Potential-** to tap and utilize the self generated energy while climbing 89 steps of NITIE using piezoelectric material.



**Agriculture machine for multi seeder sowing-** to enhance the productivity of small scale farms and to design an indigenous tool for small scale farm.



**Smart Building:** Making Academic-cum-Library building of NITIE (ALB) a Smart Building- to optimize the power consumption in ALB and too have optimal lighting system.

# Technology Transition: IoT's Midas Touch in Healthcare

When it comes to predicting the future, Kevin Ashton believes that 10 years from now, leading hospitals and care centres will have embraced hyper-connectivity, leveraging hundreds and even thousands of sensors and wearables throughout their operations. Researchers, nurses and doctors will spend less time doing administrative work and more time with patients. The healthcare industry and patients will adopt all sorts of new remote patient monitoring devices, including ingestible sensors, wearable sensor devices, and sensor-embedded clothing.

In fact, if anyone's going to have a successful stab at guessing what we'll be doing in the future, you should probably ask Mr Kevin Ashton. If you haven't heard his name, you'll probably have heard of the term he coined to describe how this future will be possible: 'The Internet of Things'.

The Internet of Things (IoT) is essentially an ecosystem of connected physical objects and where ever this technology has swept by, you can feel the Midas touch.

In this article, first, let's focus on the challenges faced by Indian healthcare sector, and in the later part, the applications of IoT in healthcare.

Unequal access, poor quality and rising costs are three key challenges faced by the Indian healthcare industry. According to a new report released by KPMG and the Organisation of Pharmaceutical Producers of India (OPPI), in rural India, only 37 percent of people have access to In-Patient Department (IPD) facilities within a 5 km distance and only 68 percent have access to an Out-Patient Department (OPD). Besides this urban-rural disparity, the doctor-patient ratio in India is just 1:1700, whereas the World Health Organisation's recommended criterion is 1:300. To reach that target, we need a set of long-term measures to create a cadre of qualified professionals. Other challenges include low quality of care, poor accountability, lack of awareness, and limited access to facilities.

It is assumed that by 2020, there will be 50 billion connected devices, and hence, IoT has the ability to offer great promises in the field of healthcare. IoT in healthcare is a heterogeneous computing, wirelessly communicating system of apps and devices that connects patients and health providers to diagnose, monitor, track and store vital statistics and medical information. Here is how applications of IoT can help in overcoming the challenges in the Indian healthcare sector.

## Real-Time Location Services

Through IoT, doctors can use real-time location services and track the devices used for treating patients. Medical apparatus and devices like wheelchairs, scales and monitoring equipment can be tagged with sensors and located easily with IoT.

## Hand Hygiene Compliance

There are hand hygiene monitoring systems that would detect the degree of cleanliness in a healthcare worker. The interactions in the hand hygiene monitoring systems are done in real time and if a primary care physician comes near a patient's bed without washing his hands, the device would start buzzing.

## Telehealth

Telehealth is another application of IoT, which is the use of telecommunication and information technology to support and promote long distance delivery of healthcare services and clinical information to remote locations. Services under Telehealth include telemedicine, telemonitoring, telesurgery and Telehealth data service.

And, these are just the tip of the proverbial iceberg. To find out how IoT based innovative business models lead to the creation of a new ecosystem, do watch for this column on next issue.

## Ongoing Research Projects



### 1. Project Title: Diffusion and Adoption of Mobile Value Added Service Innovations in rural India.

#### Objective:

- To develop a framework for diffusion and adoption of mobile value added service innovations in rural India.

**Researchers:** Prof. Ruchita Gupta, Prof. Karuna Jain, Mr. Durgesh Kumar Jaiswal

#### Findings and Recommendation:

- Information sharing about agriculture services is lacking and shall be the first action item to be considered.
- Subsidized services and incentives to use such services shall be provided.

### 2. Project Title: Patinformatics based study of additive manufacturing technologies.

#### Objective:

- To identify the technology and system readiness levels of various additive manufacturing technologies.

**Researchers:** Prof. Mukundan R

#### Findings and Recommendation:

- Preliminary research identifies Electron beam forming method as TRL4, Stereo lithography (plastic) as TRL7, Stereo lithography (Metal) as TRL3, Jet technology (ceramics) as TRL2, Selective laser sintering as TRL4, Fused Deposition Modelling as TRL5.



Answer this quiz before 12<sup>th</sup> Jan  
2018, 16:00 & Win exciting  
prizes!!



<https://docs.google.com/forms/d/e/1FAIpQLSew9Ezqx3r10I71S9JvuTjJ3uemDROH0Q7d6zIn9bBVPKSiZw/viewform>

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