



HACKATHON '17

# World's Biggest Hackathon

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## Department of Science and Technology

The Department of Science & Technology under Ministry of Science & Technology plays a pivotal role in promotion of science & technology in the country. The 9 problem statements identified by them will be tackled by technology students in Smart India Hackathon 2017

### Smart Networks for Renewable Integrated Sources for stand alone Microgrids

#DST9

Total Submissions : 44

Conditioning Monitoring (CM) of electrical system is the process of systematic data collection and evaluation to identify changes in performance or conditioning of the system, or its components, such that remedial action may be planned in a cost effective manner to maintain reliability. It is the process of continuous monitoring of



Sample data required: No

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### [Digital Technologies /MIS for monitoring Water Quality Management in water supply network at district level](#)

#DST8

Total Submissions : 26

In the absence of any stringent norms on water, the existing methodology for Water Quality Management (WQM) is inadequate to identify the various sources of pollution. Integration of data on water quality with data on water supplies, which is very important from the point of view of assessing water availability for meeting various social, economic and environmental objectives, is hardly done. Finally, in the absence of any stringent norms on water quality testing, results can change across agencies depending on sampling procedure, time of testing, and testing instruments and procedure. Thus, water quality testing is tangent to a large group of beneficiaries. That is why development of simple and fast water quality detection kits is essential to test, validate and implement state-of-the-art, innovative, accurate, robust, reliable and cost effective rapid water quality monitoring tools in Indian context.

Some data : In the last two decades, groundwater which is the major source of drinking water in Bihar, has been found to be contaminated with pollutants like Arsenic, Fluoride, Iron and Nitrate, which have resulted in serious concerns about water quality in Bihar and their health impacts. Out of 38 districts, 19 districts are affected with Arsenic, 11 districts are affected with Fluoride, 9 districts are affected with Iron, and 6 with nitrate contents above permissible limits. Recent studies indicate that the intensity and spread of these contaminations in groundwater sources are increasing with increasing dependence on the state's groundwater reserves. Infrastructural and manpower shortages are preventing successful implementation of the water quality maintenance protocol as envisaged in NRDWQMSP. Also the state and district-level laboratories are facing severe time constraints to meet the growing demand for identification of clean water sources, mainly due to the distances to be covered between the water sample collection points and the laboratories. The first step towards



substantial expertise in collecting, analyzing and managing data. Since water technology is still not advanced in India, the available data is less reliable. The existing methodology for WQM is inadequate to identify the various sources of pollution. Integration of data on water quality with data on water supplies, which is very important from the point of view of assessing water availability for meeting various social, economic and environmental objectives, is hardly done.

Sample data required: yes

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### Aggregation of latest nation – wide startup scenario in a dynamic/real time mode

#DST7

Total Submissions : 14

There are multiple blogs and news platforms like your story , ET online and many other similar online platforms whose content is focussed on Indian start-ups scenario , inspirational stories, account of interesting journey of start ups successes, failures and other stories and articles on relevance to startups and its ecosystem. It is desired to aggregate all the stories and latest news relevant to Indian start up scenario capturing successes, failures, challenges, support networks , investments, grand challenges, competitions , awards, etc in a single dynamic platform.

Sample data required: No

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### Know your incubator through a digitised platform

Total Submissions : 13



incubator based on location, domain, mentoring, funding and investment, other business support service offerings from the perspective of an end user i.e startup.

Sample data required: No

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### Corporate connect platform for startups

#DST5

Total Submissions : 32

For many startups , larger companies and big corporates are the end users, potential acquirers , part of B2B sales, business mentors, and a enabling the business models of starts ups by supporting them through CSR funding . It is proposed to formulate a corporate digital connect interactive platform to register corporates and start-ups facilitating region wise, domain wise and areas of mutual interest wise connects and match making as a win win situation.

Sample data required: No

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### Discovery platform of startups

#DST4

Total Submissions : 32

India is a home to nearly 20,000 startups. The startups being founded by young , first generation entrepreneurs often find it challenging to connect to the relevant players of startup ecosystem which includes technical domain



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### [Digitised Platform /Automatic Response platform for handling Parliament Questions](#)

#DST3

Total Submissions : 17

During parliament session , each Department receives number of Parliament Questions on varied topics raised by MPs and handled in a very time bound manner on top priority. Each reply is generally prepared by seeking inputs from all the other relevant departments which requires lot of efforts and is also time consuming at the same time. It is proposed to digitise the entire process of receiving parliament question from the Lok Sabha and Rajya Sabha directed to each Department as per defined set of key words along with a provision to be sent to all concerned ministries by selecting through a drop down menu with an attached deadline . The platform should also have the feature of uploading the inputs by all selected departments and then subsequent uploading of approved reply by the handling department to the parliament unit and the Lok Sabha or Rajya Sabha Parliament unit.

Sample data required: No

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### [Managing visitors to Science Express](#)

#DST2

Total Submissions : 22

Science Express is a unique science exhibition mounted on 16-coach AC train custom-built for Department of Science & Technology (DST). It has been travelling successfully for past 9 years across India and covered over 1,50,000 km across the country, receiving more than 1.50 crore visitors at 400+ halts, in 1500+ days. It is thus the largest, the longest running and the most visited mobile science exhibition in India, and perhaps in the world



2012-2014, it travelled as Science Express Biodiversity Special (SEBS), a unique collaboration between DST and Ministry of Environment, Forests & Climate Change (MoEFCC), Govt. of India. DST had put up exhibition on the themes of Climate Change, Biodiversity and Water, Sustainable Environment and Energy Conservation. After 7 successful tours across India, it was redeveloped and from 15 October 2015, it is running as 'Science Express– Climate Action Special (SECAS)' as a collaborative initiative of DST, MoEFCC, and Ministry of Railway, Government of India. It aims to create awareness among various sections of society, especially students, as to how Climate Change can be combated through mitigation and adaptation.

Though a project of this nature has its inherent complexities, one of the major challenges is management of visitors, especially on days when the number crosses 10,000 odd. Each phase of Science Express is spread over 6-7 months of running and we cover 50-60 locations across India. Usually, we keep the first half of the day dedicated to organized visits by schools by prior appointment. However, on an average, in each phase, at 20-25 halts, the number goes way beyond 20,000 each day. Despite our best efforts like sending invites way in advance to schools and giving them time slots, all the planning goes haywire. The school buses crowd the entrance of Railway Stations, children queue up for their turn which sometimes waiting for hours for their turn, and then just push jostle their way inside. In the process they get only 40-60 minutes inside the train and just catch glimpses of the exhibits. Entry to exhibition is free to all, being a public funded project, and Indian Railway also does not insist on Platform ticket. Though the visitors still seem to enjoy this visit, how can we afford the visitors a more fulfilling experience? For more details please visit website: [www.sciencexpress.in](http://www.sciencexpress.in).

Sample data required: Yes; Though the number of visitors vary from just a few hundred to tens of thousand each day, we can assume 2-3 scenarios: About 10,000 which is the daily average recorded over past 9 years of operations; 20,000+ visitors that throng it in mostly Tier II, III towns for about 50-60 days in each phase (run) of the train.

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[Gaming, Apps, etc. for the elderly](#)



as well as mentally. It is the latter issue (mental) and the challenges that it entails that we wish to bring to the notice of make the youth to offer viable solutions. The elderly, as per the information gathered from Department of Geriatrics, AIIMS, tend to face gradual degradation of mental faculties which could lead to several disorders like Amnesia, Alzheimer disease, among others. One possible way to arrest the onset or at least lessen the impact of these challenges is to engage the elderly in mind games like Suduko, Chess, and so on. Based on our experience of keeping the kids engaged & interested in science by making unconventional and innovative Teaching Learning Materials (TLM), we had thought of also making some models, toys, games, etc. The youth brigade from Engineering streams can be roped in to develop Apps, Gaming, and the like, to address this challenge.

Sample data required: No

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