

Background Note on Hackathon

Innovation is the key to progress. Young bright engineers are very creative, but the creativity remained untapped. One may start thinking if they are challenged. Smart India Hackathon was conceptualized to harness the creativity and energy of bright young students for the development of our nation by offering them challenges to solve the problems of our country.

A **hackathon** in general is an event in which computer programmers and others involved in software development, including graphic designers, interface designers, project managers, and subject-matter-experts, collaborate intensively on software projects. The goal of a hackathon is to innovate creatively and create usable software during the fixed interval of time.

IPPP Mantra

It is said that, need is the mother of invention. Today's, need is the mother of **INNOVATION**. If we want to remove poverty, Innovation is the only key to prosperity. Innovation can only save us. Therefore, today's Mantra for India's students is **INNOVATE, PATENT, PRODUCE AND PROSPER**. We all need to adopt **IPPP** formula.

Smart India Hackathon 2018

Smart India Hackathon 2018 has Software as well as Hardware edition.

For SIH-2018, we have participation from 27 central ministries and 17 state government ministries. From which we had received more than 900 problem statements, however, after scrutinizing these problem statements, **408** problems (340 for Software and 68 for Hardware) were finally selected for Hackathon and were put on MyGov for students to select.

Launch of SIH-2018 in Oct 2017.

Smart India Hackathon 2nd edition was launched on October 16, 2017 at the hands of Shri. Prakash Javadekar, Hon'ble Minister of HRD, Government of India and Chief Patron, Smart India Hackathon-2018 from College of Engineering, Pune. Hon. Minister had made an appeal to all the engineering students to participate and all the ministries to post their problem statements.

For SIH2018, we had received ideas from 17400+ teams with participation of over 1,00,000 No. of students. These entries were scrutinized and 1296 entries were selected for the Grand Finale that was held on 30th and 31st March 2018 simultaneously at 28 different centers across the country.

We have remarkable increase in number of students registering for the hackathon from 42000 to more than 1,00,000 number of students. Number of institutions participated in 2017 were 1200+ which has increased to 1300+

This is an indication that students and institutions both found it very exciting to participate in. In 2018 we have not only software hackathon solving the problems by providing only digital solution, but also hardware solution can be expected. However, these are two different event itself.

Hardware hackathon is likely to be held in June 2018.

SCALE – REALLY LARGE:

This is a confluence of Ministries of Union Govt., State Governments, educational regulator and Private partners.

MHRD, AICTE, i4c, Persistent Systems Ltd. and Rambhau Mhalagi Prabodhini are collectively organizing this event all over the country in over 28 centers. This is the best example of a Public – Private – NGO partnership.

MEDIA PARTNERS:

MyGov, NIC, Doordarshan and All India Radio were the media partners.

TRANSFORMATION:

Countries worldwide are transformed by students. Young minds are revolutionary minds. Hackathons will bring revolution in India. This is the initiative which bring **Digital India, Start - Up India, Stand - Up India** and **Make in India** together and make the dream of developed India come true.

DEMOGRAPHIC DIVIDENT:

Our country may lead to development if the youth energy is channelized in constructive work. If not, they may be misled by miscreants. But we are confident that no one can mislead our countrymen because they are engaged in **HACKATHON**. And those who are involved in Hackathon cannot be misled.

MODEL TO BE REPLICATED:

This model of working for 36 hours non-stop and that too all of them put together in such a large number is not the model existing anywhere in the world. Therefore, this model is being put before the world to be adopted by them. This makes the learning more and more interesting. Employability of all such students would be enhanced dramatically. These are the students to be picked up by employers. But these are the students who will create jobs and will not take jobs.

There will be many **STARTUPS** coming out of this initiative. Niti Aayog, DST, DIPP, Startup India team and Skill Ministry will be joining hands with MHRD and help these students become successful entrepreneurs.

START-UP EVERYWHERE:

I know, there will be start up everywhere with this movement. There won't be a district where there is no startup, there won't be a block where there is no startup, there won't be a college where there won't be a startup. And most importantly, there won't be a class room where there won't be a startup.

PRIZES:

I learnt that, prizes worth Rs. 1.0 Lakh, 75,000 and 50,000 each are being given at each of the 28 centers who attempted to solve central government problem. Also, 2 additional prizes worth Rs. 50,000/- each are given to best projects dealing with state government problems. Hence, each center will have total prize money of Rs. 3.25 Lakhs, totalling almost to Rs. 91.0 Lakh prize money itself. I am sure these prizes have also created the competitive environment amongst students.

After preliminary screening, 1282 teams have participated in Grand Finale event which was held on March 30 and 31, 2018 at 28 different locations in the Country, each location handheld by at least one Department / Ministry of Govt. of India.

The SIH was hosted by AICTE approved institutions, Universities and CSIR Labs. The host institutions have provided the accommodation, food and the computer labs free of cost. AICTE has provided travel support to all student teams. During the Grand Finale, the shortlisted groups worked for 36 hours continuously from 8 am on March 30, 2018 till 8 pm on March 31, 2018 and completed digital solutions for the problem statements through programming to create computer software or a mobile app.

The program was inaugurated on Day-1 at 8.00 AM by Sh. Prakash Javedkar, Hon'ble Minister HRD in the presence of Sh. R. Subramanayam, Secretary MHRD from New Delhi Institute of Management, New Delhi, one of the nodal centre, on 30th March 2018 at 8:00 AM.

Sh. Narendra Modi, Hon'ble Prime Minister of the country also motivated the participating teams through his address at 8 p.m. on 30th March 2018 through video conferencing. He has interacted with students of few centres like BHU, Banaras, C V Raman College of Engineering, Bhubaneshwar, CVR College of Engineering, Hyderabad, and Gujrat Technical University, Ahmedabad. The PM speech was telecasted live on DD-National.

Vast Number of Prizes: Due to widespread participation and enthusiasm of the participants, mentors and organizers, there has been increase in number of prizes offered too. Digital products so created by students during 36 Hours were evaluated by teams of judges drawn from the respective ministry and from industry at regular intervals and the best solutions were awarded variety of prizes of Rs. 1 lakh, Rs. 75,000 and Rs. 50,000 for the top three teams respectively. Few more sponsored awards were also given such as KPIT award, Deloitte award, Persistent award, two more prizes have been given by Persistent Systems and Deloitte India award. Some organizing institutes have also garnered prizes through their own associates and were given to participating teams at their centres.

Vast Number of Prizes: There were a total of 210 teams who won some or the other prizes in the competition from 23 different states. The maximum winner teams (53 numbers) were from Maharashtra followed by Tamilnadu with 34 teams and New Delhi (NCR) with 28 teams.

The Union Territories, Andaman & Nicobar Islands and Puducherry gave one team each as winners. It has also been noted that the maximum teams who are winners belong to non-government colleges touching a figure of

165, which requires a huge applaud in the College Category; while the Government and Government aided colleges, NITs, IITs and Govt. Universities all put together have won 45 number of prizes.

AICTE - SIH 2018 WINNER SUMMARY

Description	Total Number of Colleges	Total Number of Awards won
Polytechnic - Government	1	1
College – Government	14	15
College - Government Aided	3	3
College - Non Government	134	158
NITs	6	6
IITs	3	3
University - Government	11	17
University - Non Government	6	7
Total	178	210

Number of teams winning awards from different States and Union Territories of India

States	No. of teams participated	Number of Teams Winning Award
Maharashtra		53
Tamil Nadu		34
New Delhi		28
Karnataka		19
Madhya Pradesh		10
Uttar Pradesh		10
Gujarat		8
Haryana		7
Rajasthan		5
Telangana		5
West Bengal		5
Andhra Pradesh		4
Assam		3
Jharkhand		3
Kerala		3
Odisha		3
Punjab		3
Chhattisgarh		2
Andaman & Nicobar Islands		1
Bihar		1
Goa		1
Jharkhand		1

Puducherry		1
Grand Total		210

SOME SAMPLE PROJECTS

Some of the solutions provided which were winners dealt with *Intelligent Water Level Monitoring* in Bore wells and *Temperature control of Motor*, *digitizing Ticket Checking System* in Indian Railways for ticket checkers, a *smart editor tool for fetching and editing information from scanned document* mainly image type, *efficient Public Address System for Railways*, *Ambulance Tracking System* for 108 Services, an *Android App for Safe Driving through the Streets of India* has also been developed to facilitate driving on Indian roads, etc.

An application software has been suggested to not only forewarn but also detect in real-time, pest attacks, onset of disease in plants and effect of climate on the crop based on previously collected data and detect the current changes in the crop's soil such as nutrient deficiency, increased moisture content, etc. using seamlessly integrated self-made low cost high area coverage sensors capable of sending alert messages, as well as provide detailed report in the app in local languages.

Winners have also come up with a solution that almost replicates the share market mechanism. In the first three hours of the day, which will start around 5 in the morning, farmers will establish the market by entering the commodity they want to sell and the amount of commodity available with them. Retailers can choose one of these farmers and bid for his/her commodity.

One of the winners have also build *an app which predicts rain and local weather based on previous 100 years of rainfall data* and modeling a farmer decision support system. The application enhances ease of usage and improved coverage of farmers belonging to various parts of INDIA using a CHATBOT (named AGROBOT) which provides 24*7 seamless connectivity to

the artificial intelligence expert system along with multilingual support to the farmers.

Taking the lamp of divergent thinking and foster creative solutions forward, the winners tried to give solution to the problems of the railway ministry too. *Automotive Foldable Flaw Detection Vehicle (AFFDV)* working on Raspberry Pi. Vibration Sensor, IR Sensor and Ultrasonic Sensor have been suggested to be used for the flaw detection in the track. Using relative speed the distance of the robot and train can be maintained.

All spheres of the economy have been touched in the Smart India Hackathon 2018. A Mobile App for *Sansad Adarsh Gram Yojana (SAGY)* created by a participant has won praises. Others include a *Skill India App*, *LiForce - platform for blood donor & blood bank communication management*, *Food For All - software based innovation to solve the Hunger Crisis in India*, *Garbage Volume Estimation using Multi View Garbage photographs*, *Mess food wastage saver*, *Waste deducing Box*, GIS Based Mobile application for *Emergency Response System for Disaster Situation*, *Theft Detector in the Bank ATM using Acoustics*, *CyberGuard: Cyber bullying Reporting and Counselling*, to mention a few.

Winning teams have come up with software which enables secure USB file transactions in and around an Intranet or Internet, using USB whitelisting and strong cryptographic primitives and protocols, an app which predicts admission & jobs in Engineering & Technology with respect to demographic locations, an app to bring all advertisements of vacancies of govt. jobs under one umbrella, a software for real time monitoring of physical and financial progress of scheme being implemented at district level under various schemes, a platform that tracks and measures the impact created from all the start-ups recognized by DIPP and others as well - *Startup Impact Evaluator*.

Revolutionizing whole public transport with *cheapest carpooling*, point system to encourage use of public transport, *card-less journeys*, locating all public transport on Google Map API has been one of the major demands of the public. Road safety, driver safety, SOS system on vehicles, *Smart Parking System* based on night vision camera etc have also been looked into and dealt with.

Furthering the cause of innovation the winning teams built solutions for dissemination of information related to availability of water in reservoir, dissemination of information related to release of water from dams and census of groundwater structures. An android app which provides a communication between deep sea fishermen, coast guard and fishermen associations has also been developed.

A mobile and web-app which has function to track number of SIM cards issued for each AADHAR card and notify or restrict further SIM allocation after 9 SIM for particular Aadhar number has conceived.

Smart India Hackathon is “One of Its Kind” initiative. This unique initiative to identify new and disruptive digital technology innovations for solving the challenges faced by the country will develop an innovation culture in India.