

NASSCOM®
Center of Excellence-IoT & AI
A MeitY Initiative with Govt. of Karnataka, Haryana, Gujarat & AP



REPORT FOR
GURUGRAM
JAN-MAR'20



Ministry of Electronics
& Information Technology
Government of India



Automatic License Plate Recognition & Model deployment via Kubernetes

11th January 2020: The recent push towards FASTags by the authorities is seen as a great step towards the digitalisation of Smart Cities. However, this necessitates the distribution of FASTags for the users and deployment of associated infrastructure at Toll booths. The cameras at the Toll booths can be used for Automatic License Plate Recognition (ALPR) systems that allow detection and recognition of license plates & vehicle type.

NASSCOM CoE - IoT & AI, Gurugram and Open Data Science Conference (ODSC) Delhi organised a Hands-on session on Automatic License Plate Recognition (ALPR) System with OpenCV & Model Deployment via Kubernetes on Saturday, 11th January 2019 at CoE Gurugram center.

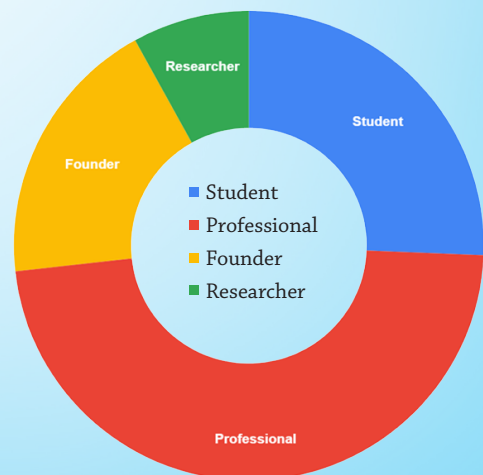
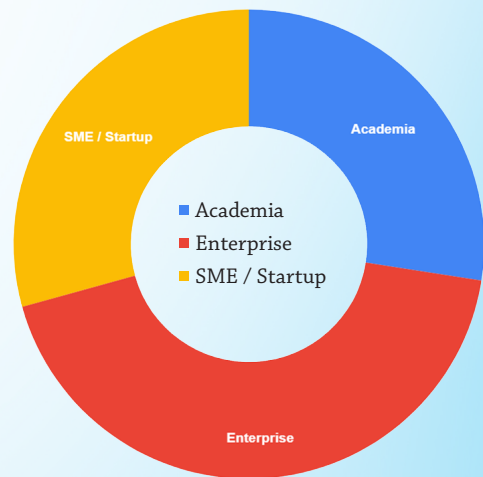
Hands-on Session 1: Model Deployment via Kubernetes by Kuldeep Duhan, ODSC Ambassador for North India

Hands-on Session 2: Automatic License Plate Recognition (ALPR) System with OpenCV by Sonal Kukreja, PhD Scholar working in copyright protection and authentication of digital images Automatic License Plate Recognition (ALPR) systems are used to automatically detect and recognize license plates in images. This hands-on session helped the attendees to develop a vehicle license plate recognition system using OpenCV and computer vision algorithms.

ATTENDEE PROFILE:

The session was attended by over 150 participants like Enterprises like TCS, Cognizant Technology Solutions, Accenture, Airtel, Barclays, Colt Technology Services, Denso, Ericsson India, EY, Ford, Gartner, Genpact, HCL, IBM, IndiaToday, Jio, JK Technosoft, KPMG, McKinsey, Nagarro, National Statistics Office, NIIT, PayTM, Publicis Sapient, PWC India, Rohde&Schwarz, Stryker, TATA Communications Limited, Thoughtworks, Vinculum,

UHG, Wipro, WNS Global Services, academia like ABES Engineering College, Amity University, Delhi University, Indian Institute of Technology Delhi, GB Pant Government Engineering College, Guru Gobind Singh Indraprastha University Delhi, Guru Tegh Bahadur Institute of Technology, Indian Institute of Technology Kanpur, Indian Institute of Technology Bombay, Jaypee Institute Of Information Technology, JSS Academy of Technical Education Noida, KIIT College of Engineering, Maharaja Agrasen Institute of Technology, Netaji Subhas Institute of Technology (NSIT), Noida Institute of Engineering and Technology, PDM University Bahadurgarh, Ramanujan College, Thapar University, YMCA University of Science & Technology Faridabad and Startups/SMEs like Ambient Technologies, AuthBridge, BoticX Lab, BuyUcoin, Cuvora, DocsInBlocks, Droom, Egore Labs, Grid Infocom, Hike, iAdapter, Incedo, KnockIoT, Mixorg, Nable IT Consultancy, Nayan Technologies, Nebularc, Nerd App Labs, NuageBiz Tech, Redgirraffe, Savanta & Thinkbumblebee Analytics.



GDG: IoT in Cloud

25th January 2020: We live in a world of the Internet of Things. Join us to know about the latest happenings in IoT and how cloud is enabling new solutions every day. NASSCOM CoE & GDG Cloud New Delhi have organised a Workshop on IoT in Cloud.

AGENDA:

11:00 AM - 11:30 AM	Registrations
11:30 AM - 12:10 PM	Bring IoT & Computer Vision together
12:10 PM - 12:50 PM	Cloud to Fog: Market Demand
12:50 PM - 1:30 PM	Lunch
1:30 PM - 2:10 PM	IoT solutions for smart cities - Air pollution and Challenges
2:10 PM to 2:50 PM	IoTfying your workplaces (Smart Workplaces)
2:50 PM - 3:30 PM	Practical approach to buzz word "IoT": Challenges & Solutions

SPEAKERS PROFILE:

Vishal Bhardwaj

Vishal is Technology Architect, IoT Solutions, Intelligent Devices Group (ThinIoT). He is involved in detailed phases of Product Research to establish technology and use-case viability and accountable for analyzing, designing and optimizing major modules such as App Data flow, undo-redo framework, Customized data logging with indexing, Generic data export, Message processing framework, Licensing, Signal flow framework, Callback mechanism, Automation Interface, SDK, App Store and many more.

Along with individual contributor role, he is actively involved in customer interaction, mentoring, architecture, Requirement Analysis, Feasibility Analysis, Effort Estimates and Quality assurance.

Vaibhav Srivastav

Vaibhav is a Data Scientist & Google Cloud certified Data Engineer, working with Deloitte Consulting LLP. He works with Fortune Technology 10 clients to help them make data-driven (profitable) decisions. He serves as a Subject Matter Expert on Google Cloud Platform to help build scalable, resilient and fault-tolerant cloud workflows. Prior to this, he has worked with startups across India to build Social Media Analytics Dashboards, Chat-bots, Recommendation Engines and Forecasting Models. His core interests lie in Natural Language Processing, Machine Learning/ Statistics and Cloud based Product development.

Pranay Nanda

Pranay Nanda is Google Cloud Certified professional with ~4 years of experience in solving business challenges pertaining to architecting and implementing large scale business solutions on the cloud. He is skilled in designing for scale and building end to end cloud-native, robust and resilient production-grade IT infrastructure. He is proficient in collaborating, building consensus, deliver, and driving technical decisions with various sized customer stakeholder groups.



Seminar on use of freely available Patent Information Resources

20th February 2020: NASSCOM Center of Excellence – IoT & AI in cooperation with the European Business and Technology Centre (EBTC) and the European Patent Office (EPO) is organizing an Interactive Seminar on Use of Patent Information Resources. This seminar brings together Emerging Technologies based Startups & SMEs & Product companies to provide a deep understanding of the Patent information resources within the IP framework and consequently leveraging IP for commercial success. It will also include a case study using freely available patent information resources.

KEY SPEAKERS:

Dr Ajai Kumar Garg: Dr Ajai Kumar Garg, Director, Ministry of Electronics & IT, Government of India, heads Innovation and IPR Division, Software Industry Promotion Division, International Cooperation - Bilateral Division & Multilateral division at Ministry of Electronics & Information Technology, Government of India.

Hana Onderkova: Hana has 10 years of cross-functional experience in the field of Intellectual Property (IPR). At EBTC, Hana’s role involves coordinating activities of the European Patent Office (EPO) to enhance IP awareness of the Indian Industry as well as to foster co-operation with the relevant Indian authorities. Hana is managing Europe-Indian IP Facilitation Forum which creates a body of knowledge together with partners and provides support to businesses.

Tanmay Mittal: Tanmay Mittal, Head IP Solutions - India Region has close to 8 years of professional experience, He continues to be a dedicated and enthusiastic IP consultant with zeal to learn and a knack for understanding diversified technologies. He has worked in the Intellectual Property CoE for consulting stakeholders regarding Intellectual Property related assessments.

What was covered:

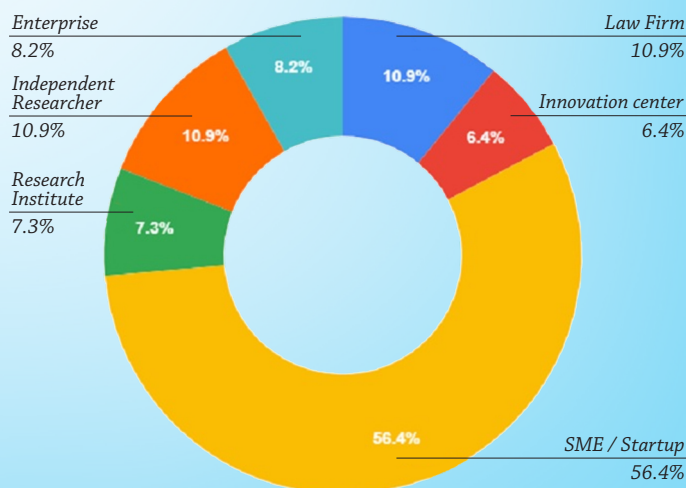
- Technology commercialisation for Indian innovators & IP Management Strategy
- Patent information resources, overview and advantages of using it
- Procedures for filing patents inside & outside India
- Importance of prior art searches
- Fiscal & Non-fiscal government benefits for IP filing in India & Europe
- Case study using freely available patent information resources



“The number of IPR filings in India have increased significantly. Earlier there used to be 4,000 to 4,500 IPR filings annually six to seven years ago but today this number has nearly doubled in India,” he told PTI on the sidelines of a seminar organised by the NASSCOM Centre of Excellence here. The governments, both Central as well as States, are supporting start-ups and MSMEs on how to create better footprint around IPR. We should not work only for others, but also create IP for ourselves. Start-ups are the only way to do it and if we do not support it then we will forever remain dependent on technology. IPR is the only way to have ownership of technology.”

- Dr Ajai Kumar Garg
Director, Ministry of Electronics & IT, Government of India

Attendee Profile



Kubernetes Workshop Series: Introduction to OpenShift

29th February 2020: Red Hat OpenShift is an enterprise-ready Kubernetes container platform with full-stack automated operations to manage hybrid cloud and multi-cloud deployments. Red Hat OpenShift is optimized to improve developer productivity and promote innovation.

With Red Hat OpenShift, developers have a fast and secure way to containerise and deploy enterprise workloads in Kubernetes clusters. OpenShift clusters build on Kubernetes container orchestration that offers consistency and flexibility for the development lifecycle operations. Red Hat OpenShift on IBM Cloud is an extension of the IBM Cloud Kubernetes Service, where IBM manages OpenShift Container Platform for the developers.

NASSCOM CoE & IBM have organised a Kubernetes Workshop Series: Introduction to OpenShift at CoE Gurugram center. This workshop will help the developers to become familiar with Red Hat OpenShift and deploy applications on and with OpenShift.

SPEAKERS PROFILE:

Mangesh Patankar is working with IBM Digital Business Group as Developer Advocate – IBM Cloud. He has around 18 years of experience and currently is working with ISV's, Partners, Startups Developer Community enabling them to adopt IBM Cloud technologies. He has represented IBM in various forums/events as a Keynote speaker on Watson and IBM Cloud. Prior to IBM, he has worked with organizations like Oracle, Patni, Syntel, Reliance Consultancy Services – right from Development, Designing, Architect to Pre-Sales role.

Karan Chaturvedi is Cloud Technical Evangelist/ Developer Advocate at IBM and has 10 years of experience in working with Enterprise, Corporate segment and E- Governance practice. Prior to IBM, Karan was associated with the companies like NTT Communications, Huawei telecommunication and Navisite for the cloud initiatives. He has completed his technical certifications in Vmware, IBM, Cisco, HP (VCP 5, IBM AIX technical and sales certified , IBM Netcool/Omnibus, HP X 9000, CCNA etc) technologies.

ATTENDEE PROFILE:

The session was attended by over 150 participants like Enterprises like Bechtel India, British Telecom, Ericsson, Genpact, HCIL, Nokia, Orange, Publicis Sapient, TATA Communications Limited, TCS, EXL, academia like ABES Engineering College, Kiet group of Institutions, YMCA University of Science & Technology Faridabad, Manav Rachna University, Ramanujan College, Startups/SMEs like Algorfocus, IHSMarkit, Mintware, NebulaRC Technologies, Northshore Technologies, OpenDataLabs, Protech Systems.



AGENDA:

- Getting Started with OpenShift for Developers
- Basics of the OpenShift platform
- Using the oc CLI and the Web Console
- What is a project? Creating a project in OpenShift
- Deploying an app from a Docker image
- Scaling an app, self-healing
- What is a Route? Creating a Route
- Using Source-to-Image to create an app



COVID-19 Coronavirus Dashboard for Govt. of Punjab

A pandemic like COVID-19 needs to be dealt with special efforts to contain & prevent the spread. DronaMaps volunteered to contribute to these efforts by providing a reliable dashboard & patient tracking mechanism.

Co-Founders: Utkarsh Singh & Ayushi Mishra

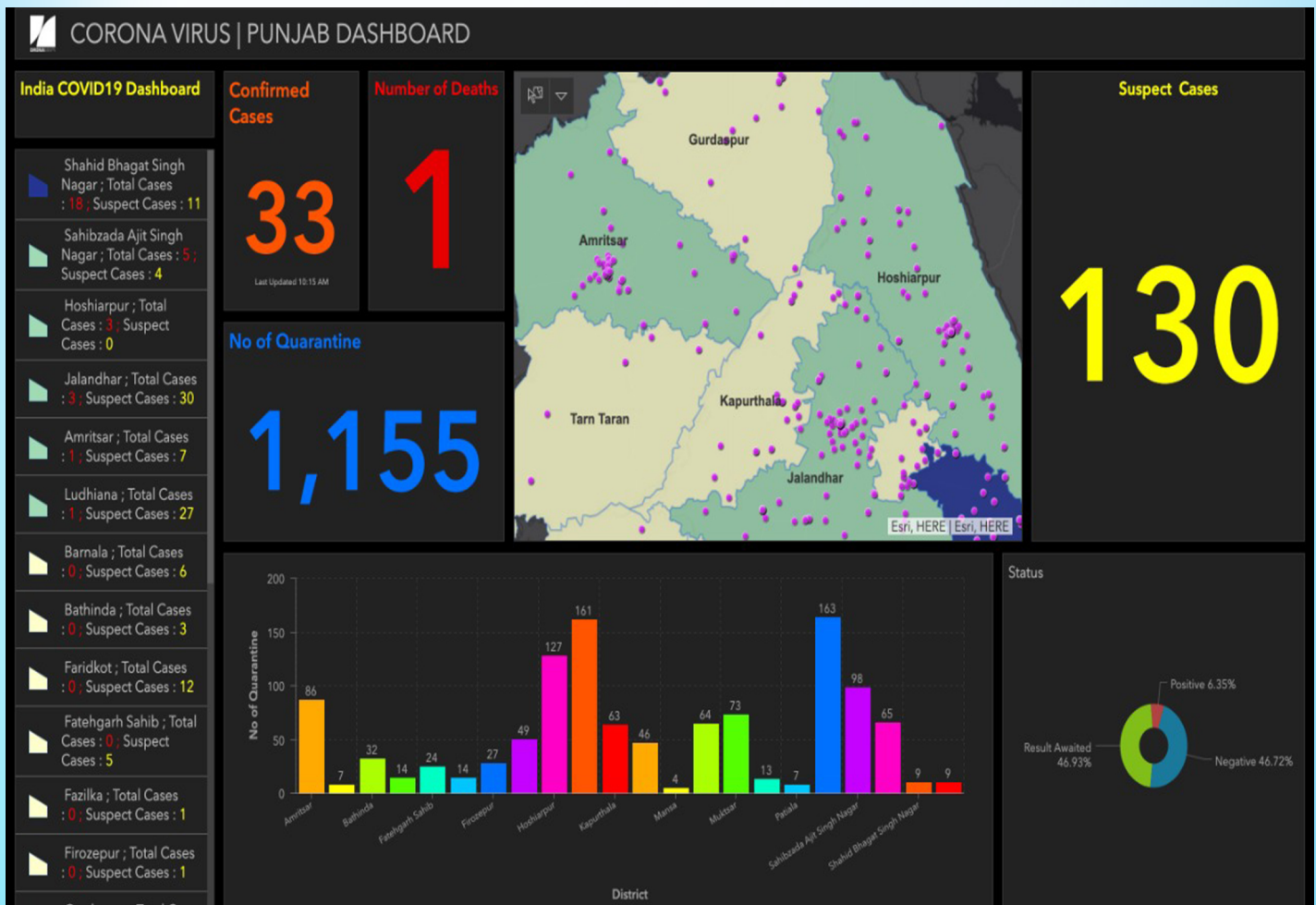
Success : DronaMaps has deployed a user-facing public dashboard that is built to provide information pooled from official sources for citizens at large. The second is an administrative dashboard for the Government of Punjab with more advanced features like Heat Maps and red zoning of districts / sub-districts based on real-time location of quarantined patients with density distribution as well as geofencing and alerts for high-risk patients/suspects. It uses the following tracking mechanisms:

- using Live GPS via Phone App
- Using Tower CDR data
- Using Cell operator VLR data



“Nasscom CoE-IoT has enabled the technology we have built - 3D mapping bringing together drones, autonomous cars and smart cities powered directly through the CoE-IoT at Gurugram. The decision makers visiting CoE-IoT get all the solutions to their modern mapping needs under one-roof, in sub-centimeter level accuracy. Our development team out of the CoE Gurugram is particularly focusing on publishing advanced algorithms in AI and its local datasets of the Indian terrain to bring the best of the world, right here at home”

- Utkarsh Singh



Heritage Preservation in Digital Space, 3D printing of Ventilator parts and Face Shields for Covid-19

Co-Founders: Dr. Anupama Mallik, Prof. Vijay Chandru, Prof. Santanu Chaudhury

Heritage Preservation: Our heritage is very fragile, as wear-tear, and natural and man-made disasters keep destroying it and erasing it from our landscape and memories. Vizara is dedicated to digitization of tangible and intangible heritage and is working with the government in creating AR-VR and 3D printing based digital installations for monuments. Some of these were recently showcased at the International Heritage Symposium and Exhibition (IHSE) 2020, inaugurated by the Minister for Culture and Tourism at the National Museum, Janpath, New Delhi in January.

A month-long exhibition of interactive, intelligent and immersive exhibits with 3D printed replicas of Kashi Vishwanath temple, Taj Mahal, Sun Temple Konark, and Hampi temples was held at the Museum and visited by thousands of visitors including the DG, UNESCO and the Minister for Science and Technology, GoI. An exhibition show-reel can be seen here:
<https://youtu.be/lZr35nKPMks>.

Covid-19: In these trying times of COVID-19, Vizara is dedicated to contributing towards providing assistance in any form to our medical community, who are at the frontlines right now to help combat this disease. We were asked by the Department of Science and Technology to 3D print some samples for Ventilator splitters and flow-limiters and deliver to AIIMS for testing.

Since the ventilators are in limited supply and hospitals may reach maximum capacity soon if the situation worsens, adding these Y-shaped circuit splitters can allow for single ventilators to be used for multiple patients, increasing the capacity of these machines. The cylindrical parts – flow limiters – assist in controlling and moderating the flow of the ventilators to help cater to varying requirements of different patients. We would encourage everyone to play their part during this health crisis, to help our nation fight this off – even if it is as little as complying to the current national lockdown and maintaining social distance if you have to go outside for essentials. Every person's contribution at this time is essential.



"We are committed to fully support our health-force in tackling and fighting the spread of Corona Virus. We are grateful to the Department of Science and Technology to have the trust in our 3D printing capabilities and in providing us the necessary passes and permissions to be able to 3D print the parts for ventilators and deliver them to AIIMS for testing. We are also grateful to NASSCOM CoE-IoT & AI for providing the logistics and admin support to run our 3D printers at their Labs. We commit to design and manufacture any items as may be needed by our medical staff during this fight against Covid-19 in India."

– Anupama Mallik



Free Flow Highway Travel & Parking Experience

Stackfusion is a smart parking & Toll automation solution. They have an edge device based computer vision led product consisting of Automatic License Plate Recognition & Vehicle detection with in-house image detection algorithms for recognising indigenous license plates. The real time identification of a vehicle, calculation of fee (toll or parking) and auto epayment transaction ensures that the traffic is non-stop and the user gets a smooth uninterrupted experience.

Their solution has been accredited by the National Highway Authority of India (NHAI) as a technology innovator for next generation ETC (Electronic Toll Collection) systems. Further, theirs is the first Indian solution to have successfully integrated FASTag for cashless payments in commercial parking space.

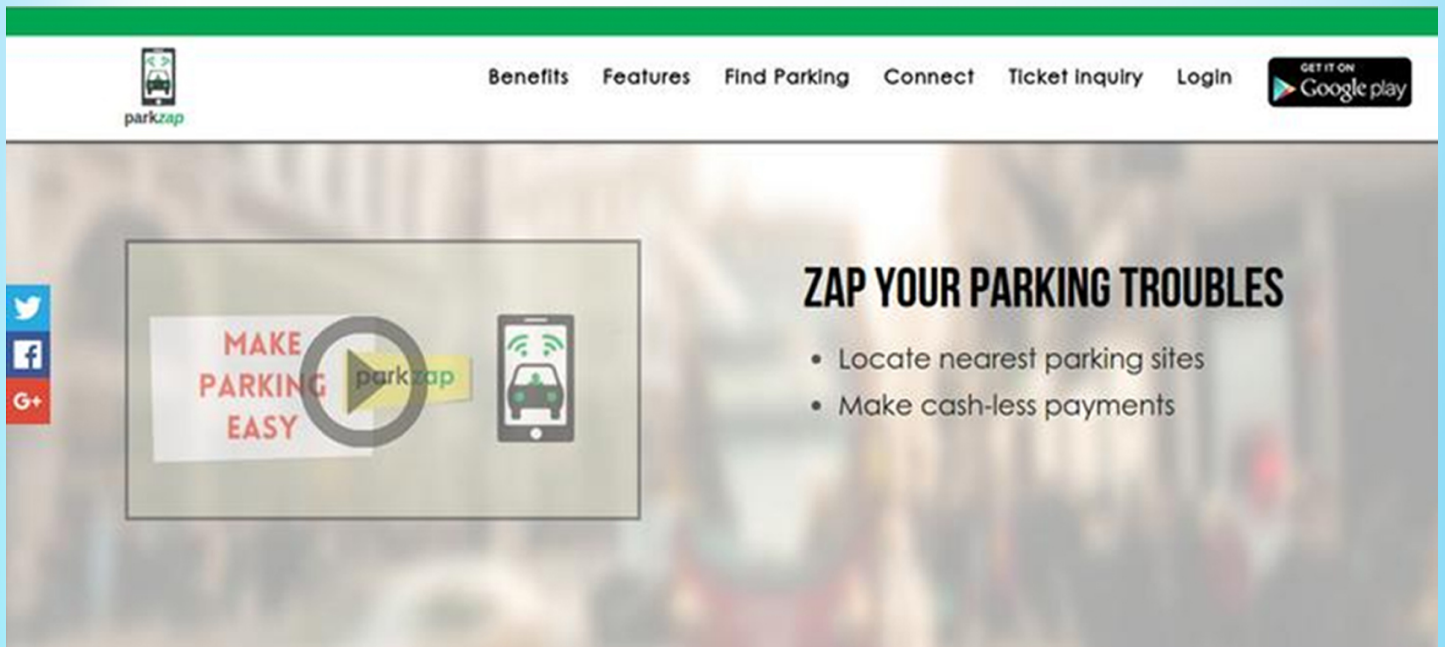
Co-Founders: Sumeet Mahapatra & Pranay Sharma



Stackfusion

NASSCOM CoE has been the perfect launchpad for us. We have immensely benefited from the CoE Lab at Gurgaon where we could rapidly iterate and test our embedded hardware and sensor integrations. The peer group at CoE enables us to collaborate with other startups in the areas of Artificial Intelligence, Proof of Concepts, industry approach among others. CoE has helped us in gaining traction, especially in the Public Sector space owing to the deep network it has. A big plus point also has been the support we have received from CoE partners for Cloud Computing, Edge GPUs, & booths at Expos/Exhibitions.”

- Pranay Sharma



Dispenser Hacking Challenge

NASSCOM CoE-IoT & AI has entered into a definitive contract with Bharat Petroleum Corporation Limited (BPCL) to drive a challenge to identify the hacking possibility (both hardware and software) in the fuel dispenser unit used at the filling stations.

CoE Gurugram initially shortlisted 15 companies, for the Ethical Hacking challenge. After the joint session along with the BPCL team, 6 curated innovators submitted the one pagers for their approach towards discovering the vulnerabilities. Finally, 2 teams were shortlisted to be present at the BPCL, Navi Mumbai, where they were joined by the Fuel dispenser unit manufacturer. Manish Bajpai and Aravind NA from Nivetti Systems and Arun Magesh along with Asmita Jha from Payatu visited the BPCL unit at Mumbai for

2 days. There they were joined by technical experts from BPCL and their vendor who explained them the working of the fuel dispensing unit. The teams conducted their experiments on the units and made their observations.

Subsequently the teams provided their details reports about the potential weaknesses in the fuel dispensing units. The reports are under study by BPCL team along with their partners and on the basis of their final recommendations, the cash reward upto Rs. 5 lacs shall be given to the teams. It may potentially be followed by initiating the deployments with BPCL by the shortlisted innovators which come up with solutions to plug the identified vulnerabilities.

“In late 2018 NASSCOM CoE-IoT & AI brought an interesting problem statement from a public sector Oil & Gas company. The company had clear vision and meant business. The problem was to inspect/count LPG cylinders moving on a conveyor line using ordinary CCTV cameras in real-time. We took up the challenge and successfully demonstrated our solution. And that led to our first PO and Customer - a Fortune 500 oil & gas major! This turned out to be a great opportunity for my startup and has put us on a growth trajectory and we are thankful to CoE for that. We have been associated with reputed incubators / accelerators but CoE is at a different level, especially from a go-to-market perspective. We receive inquiries from several CoE members too. This is truly invaluable for early stage deep tech startups like ours!”

– Raghuram, Founder Algotech



Nebulaa Grain Analyser



Nebulaa, has developed a Grain Analyser, called MATT which has the capability to assess each grain from multiple sides thus covering its entire surface, reducing the overall time of testing from 30 minutes, when done manually, to 1 minute. It can assess any morphology character ranging from varietal differences, we eviled to damaged. Nebulaa focus on Paddy, Wheat, Barley, Maize & Pulses. Nebulaa has been awarded India Patent.

Co-Founders: Tanmay Sethi & Mohit Dadhich

Success: The product has been tested across APMC environments for the past one year of Telangana, Uttar Pradesh, Rajasthan, Haryana, Punjab, Chhattisgarh and Andhra Pradesh. More than 18 agriculture commodities can be analyzed by MATT. MATT is also being used by Seed Companies, Feed Companies, Millers, Processors, FMCG Company and State Civil Supplies for the analysis of their raw and processed material.

The NASSCOM CoE-IoT team has been very active in helping us in ways to get new business opportunities. It started with the connection with a Beverage giant where the CoE team introduced the concept of automated testing of input through MATT to the Client. After the first demonstration that we gave at CoE Gurgaon, the team have come up with new ways and ideas for implementing MATT in industry. Post to our first interaction, we have been introduced to a plethora of Industry giants for implementing MATT including Mother Dairy who introduced us to the challenges they face in Mango quality testing and the industry requirements. Along with Carlsberg, we have been connected to Budweiser, R&D.

- Tanmay Sethi



World's first smartphone integrated microscope

Medprime Technologies has built a patent approved, low cost & portable connected microscope that is suitable for diagnostic and research applications. Being a low computing resource solution, it can be integrated with a smartphone or tablet for edge computing capabilities.

It has a redesigned optical system to obtain the same path length in a smaller space without compromising on resolution or magnification. Digitizing microscopy allows images to be sent from one place to another easily for diagnosis & integration with Hospital Information Systems, which coupled with the processing power of phones and tablets, helps Machine Learning powered sample analysis. The device provides an optical magnification of up to 1500X + digital zoom, Product weighs just 3kg and gives up to 15 hours backup and costs Rs 10-20 per test.

Co-Founders: Greeshma Unnikrishnan & Samrat Swami

Success: Key deployments include Bhabha Atomic Research Centre, Mumbai; Department of Health & Family Welfare, Odisha; Lilavati Hospital & Research Centre, Mumbai; AIIMS Nagpur; Kokilaben Dhirubhai Ambani Hospital, Mumbai; ICAR Research Complex for Eastern Region, Patna; L&T Technology Services Ltd; Northern Railway, Lucknow; Dr Rajendra Prasad Central Agricultural University, Pusa; Government Medical College, Aurangabad; Department of Sericulture, Leh; Military base hospital, Barrackpore; National Centre for Cell Science, Pune; National Centre of Cancer Prevention and Research, Delhi; Jawaharlal Nehru Medical College.

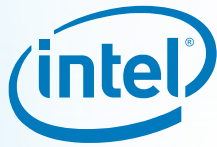
medprime

NASSCOM CoE-IoT & AI provides a high-energy and inspiring work environment, not to mention the infinite networking opportunities with other entrepreneurs, mentors, experts and corporates. CoE has a good reach in the corporate sector and utilizes it for the benefit and growth of its startups.

- Greeshma Unnikrishnan



STRATEGIC PARTNERS



INNOVATION PARTNERS



FOR FURTHER INFORMATION CONTACT :

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