



Innovathon'21

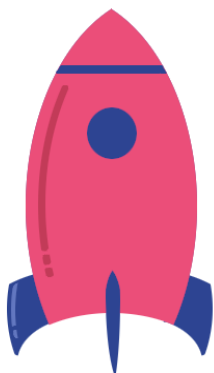
Delhi Technological University

Problem Statements



Full Stack

Test your expertise in creating user-friendly interfaces and coming up with intriguing solutions for challenging real life problems. Innovathon'21 will provide you hands-on experience to explore your potential in the field of Full stack development. Now is the chance to build an effective solution, web or mobile app, using all possible languages and frameworks with added business logic and user mindset.

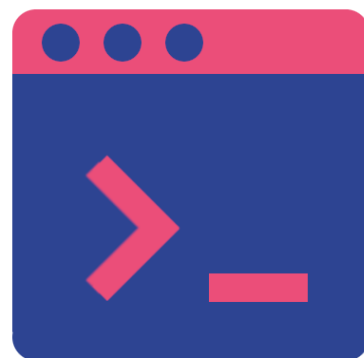


Startup Platform

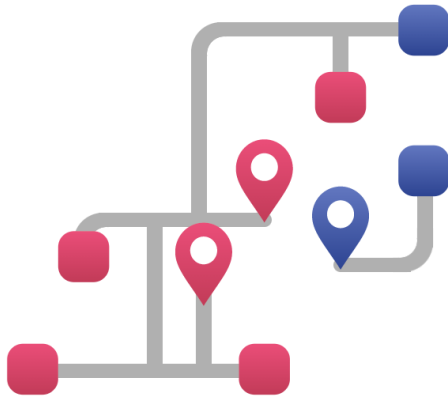
In this day and age where startups are blooming across a wide spectrum of fields, it is imperative for investors to find the right ones to invest in. Due to the sheer number of such startups some may not be able to gain traction or even gather any investors due to a variety of issues. Thus, create a platform for bridging the communication gap between entrepreneurs and investors which benefits both parties and addresses the said issues.

Competitive Programming Environment

The culture of competitive programming has been growing at an exponential scale in India as well as around the world. This invites challenges pertaining to scalability and keeping servers healthy especially during the time of contests. Thus, create an optimized platform with an online judge which benefits people who want to learn competitive programming/DSA with features possibly from existing websites offering such services. *(Submissions which involve new features will be given preference accordingly)*



Predictive Traffic Management System



Ensuring no traffic for vehicles involved in essential services like an Ambulance, Fire Brigade etc. is a big challenge for countries like India. Create a mechanism for efficient predictive routing of such vehicles keeping in mind the landscape and traffic requirements so that they can be prompt in providing their services. Participants can model a city as they deem fit and can also build platforms for any party to monitor the vehicles.

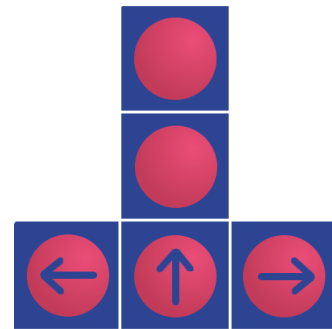
Predictive here implies that these vehicles should have pre-planned routes that minimize disruption in traffic and optimize the route they take for themselves. We can assume that multiple such essential services operate simultaneously.

Machine learning

One of the hottest fields in innovation today is Machine Learning. At Innovathon DTU, we present to you a wonderful opportunity to put your machine learning skills to the test, through a set of well-crafted problems, which demand extreme innovation and implementation skills. Are you up to the challenge?

Accident Prevention

Recent times have seen an exponential increase in road traffic. However, the increase of traffic also means an increase in the number of related accidents, such as car crashes etc. Therefore, it is essential to curb this danger by effectively using machine learning technology. For this task, participants have to create a machine learning model to help reduce the rate of road accidents.



Exam Proctoring

The onset of the pandemic has caused a paradigm shift in the way education is conducted. We have seen schools and colleges conducting classes online, and face various problems in operating as smoothly as they did traditionally. One of the factors which hinders this, is the lack of an effective proctoring system for exams conducted remotely. As part of this task, participants have to create an effective exam proctoring system to detect malpractices during conduction of an online exam.

Audio File to Sheet Music

Any musician would tell you that one of the hardest things in music is to take a given piece, and painstakingly convert it into its sheet music, writing down each individual note one-by-one according to preset rules. However, we can attempt to solve this problem using machine learning. Hence, participants have to make a machine learning model, which effectively converts a given audio file into its corresponding sheet music, capturing most relevant information related to time signatures, tempo, chord changes etc.



Entrepreneurship

An entrepreneur is a person who has the possession of a new enterprise, venture or idea and is accountable for the inherent risks and the outcome, a person who is willing to launch a new venture or enterprise and accept full responsibility for the outcome. Entrepreneurs are at the forefront of today's techno-startup revolution. Are you ready to unleash the Entrepreneur within you and bring the change you want to see in the world?

Social Innovation using Tech

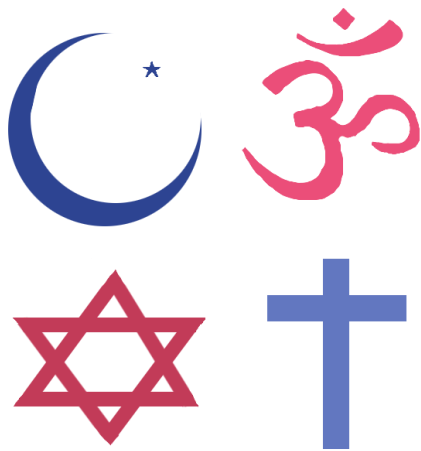


India has a huge population and a major chunk of the population is involved in formal and informal sectors. As an entrepreneur, what can you do to increase the income, employability and thus the overall standard of living of such workers? You have to design a product or service to aid the financially backward strata of the society and prevent their exploitation.

Digital Connectivity and Literacy

Can you imagine a life without the internet today? The Internet has become a basic human right in today's world. Though there have been remarkable improvements in the digital connectivity of the country, we can do better. There are many rural backward areas where connectivity is scarce, and costly. We challenge you to design a solution for increasing the digital reach even in off-the-grid areas and improving digital literacy. This can be a great step in Democratizing the Internet and truly connecting the people.





Identity-Based Violence

India is one of the most diverse countries in the world with a humongous number of cultures, tribes and religious communities. Though all these communities coexist peacefully mostly, there are numerous conflicts in the name of communal identity. There are a lot of factors like misinformation and radicalisation that contribute to this problem. Unfortunately, a lot of people die each year and a lot of property is vandalised or

arsoned. This greatly affects the quality of life of the people in our country.

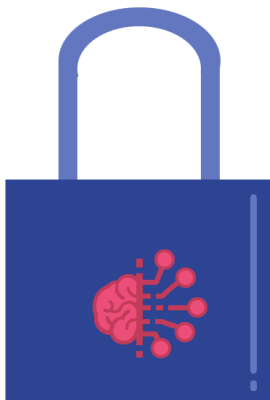
As an entrepreneur, what can you do to improve communal harmony and reduce animosity and violence among people of different religions, caste and communities?

Hardware

Get ready to put your hardware programming skills to test! The hardware challenge is all about building viable, ready to deploy solutions to real life problems ranging from everyday automation to medical and intelligent security systems.

Medical Assistance

The 21st century saw a huge improvement in the medical infrastructure of India. Building on this, develop an easy to manufacture part/machine/device that can lower medical expenditure of an individual customer while keeping the process realistic and implementable.



Smart Security

The easy access to hardware and online electronics support has allowed people to build their own smart homes. But every home needs a robust security system to monitor and prevent intruder activity. Design a smart home security system that can be presented as a market viable solution. Scalability of the system would earn higher preferences.

Automate DTU

We've all seen that our college has some systems in place that could be automated to reduce redundancy as well as human error. As students of the institute, it falls on us to take up the challenge and find the problems and use them as opportunities. You have been tasked with identifying any such process in DTU and develop an ingenious solution to automate it.

