



# **RULE BOOK**

## **G20-MAIT Intra-College Hackathon** *(Innovation, Ignite and Inspire)*

**28-29, March 2023**

### *Organising Secretaries*

**Prof. Namita Gupta**  
HOD, CSE

**Prof. M.L Sharma**  
HOD, IT

Organised by:

**DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING  
& INFORMATION TECHNOLOGY**

**MAHARAJA AGRASEN INSTITUTE OF TECHNOLOGY**

Rohini , Sector-22, Delhi

## GENERAL RULES

1. The responsibility of the components and the materials required for developing the prototype during the Hackathon lies solely on the participating teams.
2. This is a 24-Hour Hackathon, scheduled on 28-29, March 2023.
3. The entire idea need not be fully implemented however, the submission should be functional so that it can be reviewed by the judges.
4. Entire team members should be present at the time of each qualifying round of the Hackathon.
5. It is mandatory for all the participants to be present at the time of inauguration and valedictory session, failing which they will be disqualified from the Hackathon.
6. Teams will be shortlisted for the Hackathon based on the PPT submitted at the time of registration.
7. Each team should strictly follow the PPT format mentioned on the website/brochure.
8. Teams can use libraries, frameworks, or open-source code in their projects.
9. The developer/developers of the solution will have all rights and own the IP of the product. However, all code needs to be in public domain (open source) so that it can be evaluated by the judges.
- 10. Teams can be disqualified from the competition at the organizers' discretion. Reasons might include but are not limited to breaking the Competition Rules, breaking the Code of Conduct, or other unsporting behavior.**
11. Your code repository must be initialized at the beginning of Hackathon itself.
12. You can use resources such as Stack Overflow and GitHub.
13. In general, internet resources are allowed. However, direct plagiarism of ideas/code is not allowed.
14. There is no restriction on the programming languages and platforms used to develop the product.

## TEAM FORMATION RULES

1. This Hackathon is only for the students of MAIT.
2. Composition of team members can be from any branch, shift and year of MAIT.
3. **Each team would comprise of 2 to 6 members (including a team leader) and a faculty mentor (not mandatory but recommended).**
4. **If you competing in Kawach Hackathon (<https://kavach.mic.gov.in>) also, then team formation for this Hackathon is: Each team would mandatorily comprise of 6 members including the team leader. Each team must have AT LEAST ONE FEMALE TEAM MEMBER.**
5. Team with no faculty mentor will be allotted faculty mentor by the hackathon team.
6. No team member is allowed to register for multiple teams.

## REGISTRATION

1. Registration of teams must be done by a Team Leader only.
2. Register your team using the link:
3. Team can register under any single problem mentioned on the website/ Hackathon Page, however only one registration per team is allowed.
4. **Last date of team registration is 10<sup>th</sup> March 2023.**

## IDEA SUBMISSION RULES

1. **The idea submission begins on 4<sup>th</sup> March 2023.**
2. **Last Date of Submission of Idea: 20<sup>th</sup> March 2023.**
3. The team must be registered on <https://forms.gle/bCHspjQ9wiiJJGL26> in order to submit the idea.

4. The PPT for the idea should be submitted in the format provided along with all the mandatory details.
5. PPTs should be submitted only in the prescribed format; otherwise, they are bound to get rejected.
6. Teams who have not registered or not submitted the idea will be automatically disqualified.

### SHORTLISTING OF IDEAS/TEAMS

1. Based on the Faculty Mentors feedback, teams will be shortlisted for First Round of Hackathon to be conducted on 28<sup>th</sup> **March 2023**..
2. Final Round of hackathon will be conducted on 29<sup>th</sup> **March 2023**.
3. All shortlisted teams will be informed by the G20-MAIT Hackathon Team through registered email ID/ WhatsApp number of respective Team Leader .

### JUDGEMENT: -

*Evaluation criteria will include novelty of the idea, complexity, clarity and details in the prescribed format, feasibility, practicability, sustainability, scale of impact, user experience and potential for future work progression.*

<b>KEY ATTRIBUTES</b>	
<b>IDEA</b>	Did the proposal address the problem statement and theme? Was the idea creative or innovative?
<b>IMPLEMENTATION</b>	Does the solution work? Did the team achieve everything they wanted? How technically challenging/ impressive was the implementation? Does this solution scale as a real solution with multiple users?
<b>DESIGN</b>	Did the team put thought into the user experience? How well designed is the interface?
<b>PRESENTATION</b>	Does the presentation clearly define and address the problem statement?

### GENERAL CONDITIONS

- Administrator reserve the right, in their sole discretion, to cancel, suspend and/or modify the Hackathon, or any part of it, in the event of a technical failure, fraud, or any other factor or event that was not anticipated or is not within their control.
- Administrator reserve the right in their sole discretion to disqualify any individual or Maker it finds to be actually or presenting the appearance of tampering with the entry process or the operation of the Hackathon or to be acting in violation of these Official Rules or in a manner that is inappropriate, unsportsmanlike, not in the best interests of this Hackathon, or a violation of any applicable law or regulation.
- If there is any discrepancy or inconsistency between the terms and conditions of the Official Rules and disclosures or other statements contained in any Hackathon materials, including but not limited to the Hackathon Submission form, Hackathon Website, advertising (including but not limited to television, print, radio or online ads), the terms and conditions of the Official Rules shall prevail.
- The terms and conditions of the Official Rules are subject to change at any time, including the rights or obligations of the Maker, and the Administrator will post the terms and conditions of the amended Official Rules on the Hackathon Website. To the fullest extent permitted by law, any amendment will become effective at the time specified in the posting of the amended Official Rules or, if no time is specified, the time of posting.

- If at any time prior to the deadline, a Maker or prospective Maker believes that any Official Rule is or may be unclear or ambiguous, they must submit a written request for clarification.
- The Administrator's failure to enforce any term of these Official Rules shall not constitute a waiver of that provision. Should any provision of these Official Rules be or become illegal or unenforceable in any jurisdiction whose laws or regulations may apply to a Maker, such illegality or unenforceability shall leave the remainder of these Official Rules, including the Rule affected, to the fullest extent permitted by law, unaffected and valid.

**Theme:** The theme spotlights LiFE (Lifestyle for Environment), with its associated, environmentally sustainable and responsible choices, both at the level of individual lifestyles as well as national development, leading to globally transformative actions resulting in a cleaner, greener and bluer future.

### **Problems: (Software Edition)**

#### **1. New age women safety app**

**Description:** *Design and develop a Women safety app that automatically senses the danger to a mobile user and triggers an SOS alert with location details based on multimodal data from a mobile device such as audio, video, image, motion detection etc., given a situation that the user is not able to operate the mobile.*

#### **2. Obscenity blocker solution**

**Description:** *Design and develop a technological solution for identifying and blocking any obscene media (image/video/audio) at the user's end. The solution should be able to send alerts to the concerned nodal agency in case of the spread of such content. The solution may be in the form of a desktop/mobile application or a web browser plugin.*

#### **3. Advanced fake news detection system**

**Description:** *Design and develop a technological solution/software tool for Tracking & Tracing Fake News and its origin using official sources as the input filter. The solution should have a mechanism to mitigate the impact of the spread of Fake News by auto-populating the fake news spreaders' inboxes with the official/authenticated news content.*

#### **4. Phishing Detection Solution**

**Description:** *Design and develop a technological solution for AI-enabled Phishing Links Detection and Alert System. The solution should be able to identify the source of phishing attacks in web pages, email apps, social media, instant messenger apps, text messages etc. The solution may be in the form of a desktop/mobile application or a web browser plugin.*

#### **5. Advanced ANPR & FRS solution**

**Description:** *Design and develop a technological solution that can accurately perform the Automatic Number Plate Recognition (ANPR) along with Facial Recognition from the available CCTV feeds. The solution should be able to recognize number plates that*

are written in typical non-standard ways using varying font styles, sizes, designs, symbols, languages etc., i.e. difficult to recognize by existing ANPR Systems.

## **6. Dark web crawler**

**Description:** Design and develop an AI-enabled technological solution for actionable Crime Intelligence from the Deep and Dark Web including but not limited to weapons, drugs etc. The solution should have the capability to raise demands for additional information from clear-net and proprietary databases viz. TSPs/ISPs for attempting correlation and attribution.

## **7. Spam alert system**

**Description:** Design and develop a crowd-sourcing based solution that can analyse and verify the source of any incoming call, SMS and Email based on the inputs from the end-users. The solution should be able to classify, whether the source is genuine or spam. Also, the solution should be able to generate a risk score for incoming calls, SMS and Emails, based on the crowd-sourced input.

## **8. Malware Analysis/Digital Forensics**

**Description:** Design and develop a technological solution for the detection and prevention of Fileless Malware (a type of malicious software that uses legitimate programs to infect a computer). The solution may be in the form of a desktop or mobile application.

## **9. Advanced CCTV analytics solution**

**Description:** Design and develop a technological solution based on live CCTV feeds, that can automatically detect incidents related to street crime, violence, burglary, theft, infiltration, unauthorized access etc. and generate alerts to the nearest Police Station. The solution should also be able to generate a report and maintain a database that includes the nature of incident/crime, location, time, level of alert (i.e., low, medium, high risk alert) etc.

## **10. RAM dump collection tool**

**Description:** Design and develop a technological solution that can collect RAM Dump from any Windows, Linux or Mac based operating system. The solution may be in the form of an Auto-Executable/Lite Version that can be run/executed from any USB storage device without installation at the target computer system.

## **11. Citizen safety app for protection against cyber crimes**

**Description:** Developing an App to flag malicious/fraud indicators in real-time.

- a) Mobile Number
- b) SMS Headers
- c) URL Links.
- d) UPI addresses
- e) Bit coin Wallet Address etc.
- f) SMS Templates

## **12. Fund trail analysis tool**

**Description:** *Fund Trail Analysis Tool (Financial Statements in various Formats- pdf, csv etc).*

**13. Tool for monitoring ground personnel**

**Description:** *Platform/tool to remotely track police officers deployed to bandobast duty using NFC(Near Field Communication)to ensure that they stay where they are posted.*

**14. Chat messenger decryption tool**

**Description:** *Utility to decrypt We Chat, and Ding Talk from cloud / local storage from evidence.*

**15. Mesh network app detection**

**Description:** *Design and develop a technological solution for detecting apps like Fire chat that use Mesh Networking to connect users without cell service in a given area. The solution should be man-portable and should be able to scan an area corresponding to a relatable TSP-BTS.*

**16. Detecting usage of LoRa**

**Description:** *Design and develop a technological solution for detecting usage of LoRa (low-power wide-area network modulation derived from chirp spread spectrum) in a given area.*

**17. Hardware forensic suite**

**Description:** *Hardware Forensic Suite- Disk, memory, and Network Traffic (windows, Linux, Mac) with On-Prem and Cloud options.*

**18. Plug & play system security audit tool**

**Description:** *Plug and Play System Security Audit Tool for Windows, and Linux. Agent-based with a centralized dashboard.*

**19. Solution for auditing propriety cellular/portable electronic device hardware**

**Description:** *Design and develop a technological solution for auditing proprietary cellular/portable electronic device hardware for backdoors and vulnerabilities. The solution should have the capability to audit OEM embedded as well as third-party integrated hardware.*

**20. Indigenous Crypto Currency Investigation Tool**

**Description:** *Indigenous technological Crypto Currency Investigation Tools with multi-blockchain platform support*

## **Problems: (Hardware Edition)**

Technological change on a massive scale will be needed to achieve large reductions in global GHG emissions. The emissions are affecting the land, air, and water bodies all around the world. Ideas are invited to provide the solution for the same considering the reusability, renewability and reducibility concepts.

### **1. Converting Carbon Emissions from Air to Renewable Energy**

**Description:** *Renewable energy sources are the least expensive options in boosting electricity access, reducing air pollution and cutting carbon dioxide emissions worldwide. Suggest technical ways for managing these carbon emissions and converting them into renewable energy.*

### **2. Reducing Air Pollution through Traffic Control**

**Description:** *Vehicle-generated pollution contributes to more than 70% of the air pollution across the globe. Suggest ways to reduce the air pollution through controlling the traffic.*

### **3. Reducing Ocean Acidification**

**Description:** *The ocean absorbs around 30% of carbon dioxide (CO<sub>2</sub>) released to the atmosphere as a result of human activities. As CO<sub>2</sub> dissolves in seawater, it forms carbonic acid, decreasing the ocean's pH. Suggest approaches to reduce the ocean acidification.*

### **4. Floating Solar Plants and Farms**

**Description:** *Despite the advantages of solar plants, floating solar still represents less than 0.5% of the total solar photovoltaic installations globally and an even smaller share of the entire renewables market. Suggest some cost effective and easy to implement solar plant solutions for the same.*

### **5. Agrovoltaic Systems in India**

**Description:** *An Agrovoltaic system combines agricultural crop production and energy production in the same place, emphasizing the dual use of land. Suggest how such systems can be implemented in India.*

### **6. Robotics and Drones**

**Description:** *There is a need to design drones and robots that can solve some of the pressing challenges of India such as handling medical emergencies, search and rescue operations, etc. Suggest some cost effective solutions.*

### **7. Smart Vehicles**

**Description:** *Creating intelligent devices to improve the commutation sector. Like connected vehicles are integrated with networks in smart cities and supporting development of the highly sophisticated communications required for autonomous driving. Suggest efficient ways for the same.*

### **8. Disaster Management**

**Description:** *Disaster management includes ideas related to risk mitigation, Planning, and management before, after, or during a disaster. Suggest how such systems can be implemented in India.*

## **9. Detecting usage of LoRa**

**Description:** *Design and develop a technological solution for detecting usage of LoRa (low-power wide-area network modulation derived from chirp spread spectrum) in a given area.*

## **10. Solution for auditing propriety cellular/portable electronic device hardware**

**Description:** *Design and develop a technological solution for auditing proprietary cellular/portable electronic device hardware for backdoors and vulnerabilities. The solution should have the capability to audit OEM embedded as well as third-party integrated hardware.*

## **G20-MAIT:**

This Hackathon provides a conducive environment which stimulates the growth of ideas. We at MAIT invigorate students to not only come up with ideas, but also execute tangible prototypes to incite those ideas and embrace the world of entrepreneurship. With this approach in mind, we introduce G20-MAIT where after 24 hours of long efforts they put in, we would help them to take their solution forward.