Rulebook

Techathon

(Open for All)

About

The globe is currently in search of resourceful and talented individuals who possess the ability to devise solutions for various specific challenges swiftly. Embracing these unique skills is crucial for individuals aspiring to emerge as the next major player in the technology industry. The **National Innovation Competition 2024 - Technocrats V.2** presents an opportunity for individuals to exhibit their innovative robotic skills and discover hidden talents through **Techathon**. Techathon, a fusion of **Technology** and **Hackathon**, gathers like-minded creative and tech-savvy teams to engage in enjoyable innovation-driven projects involving both hardware and software. During a Techathon event, participants will be presented with a coding and hardware-related challenge within a certain period. The organizers will provide the necessary hardware, while participants must bring laptops to code the solution. Participants are permitted to utilize any software and access the internet as needed.

Eligibility

1. Participants must be **University** (Undergraduate Level, Bachelor's, Honor's, Degree), **College, Polytechnic** students. Participants must have a current studentship status which could be verified by an institutional ID card.
2. Each team shall be within **1-4 members**.
3. Students from different educational institutions can form a team.

Registration Fee: 2,000/-

Registration Link: https://forms.gle/8pUsaVkkf7oihSsp6

(Please select your following segment during registration)

General Rules

- Competition duration: 7 hours
- **Eligible software for the segment:** Participants are allowed to use any kind of software. But code must be written during the competition.
- Each team must install the required software before the event.
- Participants must bring their own laptops (minimum 1 laptop per team).
- Students must also bring multi-plugs, adapters, and charging cords.
- Students are not allowed to bring any equipment related to solving the problem given by the authority.
- Using the internet is allowed during the competition.
- Each team must present their project design & describe their working activities.
- Before the competition is over, competitors are not allowed to leave the area.
- There will not be any time extension.
- For any inconvenience, the Team Leader will be contacted.
- The teams must show up on the IUBAT campus at the appointed hour.
- Each team must return the given hardware components.
- Participants are requested to manage internet connectivity from the organizers or by themselves or from the (for better network speed).

Important Rules

- Participants must present **10 minutes** before the time to the campus.
- The problem will be given instantly to the team and time will start from then.
- A **set of hardware** will be given to the participants to make their project.
- It will be a **real-life project** where a problem will be given related to **coding** and **hardware** and participants have to solve this problem by coding and building the project with the given hardware.
- Participants will not be allowed to do any kind of misbehavior or misconduct with the organizers.
- After completing the project, no one will be allowed to visit anywhere further until the judgment completion.
- Project must be developed by the given hardware and **submitted** to the organizers after assessment.
- Three times **periodic judgment** will happen for the assessment of the project. Each judgment will take place in just after **2 hours**. The final assessment will be the combined form of all the judgments done in the whole segment.
- Any unethical violence or abnormal activities are strictly prohibited and it may cause disqualification of the team.

Team Selection Process

- Authority will take a maximum of **15 teams** for on-campus competition.

- If the registration is done by more than 15 teams, then the authority will take a **pre-online round** of coding challenge to select the best 15 teams. Other team registration money will be refunded.
- Every single task will be notified by your given **mail** in the registration form.
- Authority will not take any responsibility for your misinterpretation or ignorance of our guidelines.

Demo Examples

Problems

The primary goal of this project is to design and implement an automated door lock system that can be controlled remotely and offers advanced security features. The system should be user-friendly, reliable, and compatible with various smart home devices.

Possible Input: Password, Voice Recognition, Face Recognition, RFID or NFC.

Possible Output: Opening/Unlocking the Door, Greetings, Access Record, Light/Sound

(The Following Hardware will be provided for the above Demo Problem)

Hardware Requirements----

Microcontroller:

Arduino Uno: The central unit responsible for processing input signals and controlling the lock mechanism.

Locking Mechanism:

Solenoid Lock: To physically lock and unlock the door based on the signals received from the Arduino. Electronic Strike Lock: As an alternative or additional locking mechanism for enhanced security.

Servo Motor: To physically lock and unlock the door based on the Arduino PWM signal, it can also lock the door by rotating feature.

User Input and Authentication:

Keypad: Enter a PIN code to unlock the door.

RFID Reader: For contactless entry using RFID cards or tags.

Biometric Sensor: Such as a fingerprint sensor for secure and convenient biometric authentication.

Communication and Control:

Wi-Fi Module (ESP8266 or ESP32): For remote control and monitoring of the lock system via a smartphone app or web interface. Bluetooth Module: For local wireless control via a mobile app.

Bread Board: It joints all the electric signal components together.

Power Supply: Battery Backup: Ensuring the system remains operational during power outages. Power Management Circuit: To manage power distribution and extend battery life.

Relay Module: It switches the locking mechanism from Arduino Signal.

Sensors: Door Position Sensor: To detect whether the door is open or closed.

Motion Sensor: For additional security, to detect any unauthorized attempts to access the door.

- Alert and Notification button will be provided.
- LED indicators will be provided.

Note: All the hardware required to solve this type of problem will be given to the participants by the authority. Any kind of software can be used to solve it which should be installed on the participant's laptop. Authority will not suggest any software or compiler to solve the problem. For any further information, please do contact with authority person's contact given below. Thank You.

Disclaimer

- The authority holds the right to change the competition rules as required.
- Participants must bring their **student ID** for the verification process.
- Any participant or team that is found to violate the regulations may be disqualified by the organizers.

Assessment Criteria

Assessment Criteria	**Marks**
Design of Project	15
Development / Activities (Including Hardware Assemble and Related Coding)	30
Outcome / Output of the Project	25
Accuracy of the Output	15
Project Demonstration	15

Awards

- Champion will be given a price money of **25k** along with crest and certificates.
- Runner-Up will be given a price money of **15k** along with crest and certificates.
- 2nd Runner-Up will be given a price money of **10k** along with crest and certificates.

NOTE – The team Coordinator and Judge reserve the right to change the rules at any point in time. The change will however be highlighted on the website.

For Any Queries:

Contact/Organizers Details

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