

## EVENT GUIDELINES

CATEGORIES	ELIGIBILITY	GUIDELINES	
1. RoboChamp	Class 3 to 5	Maximum members	2
		Maximum wheels	4
		Motors	200 rpm
		Robot Dimension (not exceed)	30cm (Length) 30cm (Breadth) 30cm (Height)
		<ol style="list-style-type: none"> <li>1. Any Design.</li> <li>2. Material type for designing Robot: Cardboard, Wood, Bamboo etc.</li> <li>3. Wires must be connected properly, to avoid issues on the day of competition.</li> <li>4. Working model should be presented on the day of competition.</li> <li>5. The decision of the judge/Organizer will be final.</li> </ol> <p><b>Challenges:</b></p> <ol style="list-style-type: none"> <li>1. Robots will be judged based on Design, Purpose and Understanding.</li> <li>2. Participants are required to demonstrate a fully functional model robot.</li> </ol>	
2. Scratch	Class 3 to 5	Maximum members	2
		Project source	MIT Scratch app
		Project type	Games/Story mode

		<ol style="list-style-type: none"> <li>1. Teams must be able to explain the code of the project.</li> <li>2. Copy pasting of Scratch projects from the internet is strictly prohibited.</li> <li>3. Participation of both members from the team in building the project is a must.</li> <li>4. Teams will be examined by judges, any questions from the project will be asked to confirm their participation.</li> <li>5. Teams are requested to bring the project in a pen drive or bring their own system such as Laptop/tablets.</li> <li>6. The decision of the judges/organizers will be final.</li> </ol> <p><b>Challenges:</b></p> <ol style="list-style-type: none"> <li>1. The teams will be given 3 minutes to present their projects in front of the judges.</li> </ol>	
3. Basic Electronics	Classes 6,7 & 8	Maximum members	2
		Allowed	Only 9V battery
		Not allowed	Alternating current (AC)
		<ol style="list-style-type: none"> <li>1. Teams must bring their own components on the day of the event. Required to bring extra components in case of any technical issues.</li> <li>2. The decision of the judges/organizers will be final.</li> </ol> <p><b>Challenges:</b></p> <ol style="list-style-type: none"> <li>1. The teams will be given 3 minutes to present their projects in front of the judges.</li> </ol>	
4. App Inventor	Classes 6, 7 & 8	Maximum members	2
		Project source	MIT Scratch app
		Project type	Games/Utilities app

		<ol style="list-style-type: none"> <li>1. Teams must be able to explain the code of the project.</li> <li>2. Copy pasting of code from the internet is strictly prohibited. Teams must create their own app using their own ideas.</li> <li>3. Participation of both members from the team in building the app is a must.</li> <li>4. Teams will be examined by judges, any questions from the created app will be asked to confirm their participation.</li> <li>5. Teams are requested to bring the project in a pen drive or bring their own system such as Laptop/tablets for presentation.</li> <li>6. The decision of the judges/organizers will be final.</li> </ol> <p><b>Challenges:</b></p> <ol style="list-style-type: none"> <li>1. The teams will be given 3 minutes to present their projects in front of the judges.</li> </ol>	
5. Line Following Bot (LFB)	Class 7-12	Maximum members	3
		Type Arduino boards	Arduino Uno, Arduino Nano etc.
		<ol style="list-style-type: none"> <li>1. Working model should be presented on the day of competition.</li> <li>2. Participation of all the members from the team in building the project is a must.</li> <li>3. Teams will be examined by judges, any questions from the project will be asked to any members to confirm their participation.</li> <li>4. The decision of the judges/organizer will be final.</li> </ol>	
		N.B.: [Details of further guidelines for LFB will be issued after REGISTRATION]	
6. Capture the Flag (CTF) MINI HACKATHON	Problem 1 guideline	<b>Team Puzzle Relay:</b> Each team will have a starting point and an endpoint, one by one you will have to collect the pieces of the picture from the end point and bring it to the starting point, where all the pieces will be merged to form 1 big picture.	
	Problem 2 guideline	<b>Caesar Cipher:</b> In the second stage, participants will come across a Caesar Cipher with a secret code, which they will have to solve in-order to proceed to the next stage.	
	Problem 3 guideline	<b>Math dice puzzle Relay:</b> You are given a task to solve the volume of the rectangle. One member from each team must start from the starting point to End point and roll the dice to get the number. The next person in	

	line can start to run to the end point, roll the dice and get the number. After getting all the numbers Find the volume of the Square.
Problem 4 guideline	<b>Polybius square:</b> The students will come across a coding problem and in order to execute the program, they will have to solve the Polybius square.
Problem 5 guideline	<b>Robot Rider:</b> Build a Robochamp Rider and connect it to the Controller. Complete the task from start to the Finish line .
Problem 6 guideline	<b>Mystery Puzzle:</b> This problem requires all 4 members to solve a logic based puzzle which will enable them to finish the challenge.
<p><b>N.B -</b> 1. <i>Order of the problems may vary at the time of competition.</i>                  2. <i>If there are more teams than anticipated, a Preliminary Round will be held.</i></p>	
<p><b>General Guidelines:</b></p> <ol style="list-style-type: none"> <li>1. Each team shall consist of 4 members.</li> <li>2. Classes 6 &amp; 7 are eligible for this Category.</li> <li>3. Each school shall consist of only one team.</li> <li>4. Once the game starts, members are restricted from conversing with the audience or with other group members.</li> <li>5. No electronics equipment shall be entertained. Members caught with such devices will be declared disqualified.</li> <li>6. All the necessary equipment shall be provided by NAGABOTS.</li> <li>7. All the decisions taken by NAGABOTS in respect of any matters shall be final.</li> <li>8. The event shall be for 1 hour.</li> <li>9. Participants are requested to report 20 minutes prior to the commencement of the events.</li> <li>10. Each group will be assigned with in-charge to monitor the progress.</li> <li>11. The team who finished all the stages with the least amount of time will be crowned the Winner.</li> </ol>	
7. Innovation challenge	<p><b><u>Category: Open to all</u></b></p> <p><b>Suggested problem statements:</b></p> <p><i>a. IoT and AI-based Smart City Solutions: Develop comprehensive solutions for public utilities such as surveillance, garbage pickup, road maintenance, encroachment detection, incident reporting, and virtual patrolling using IoT and AI technologies.</i></p>

*b. **Coordinated Developmental Projects:** Propose tech-based solutions to enhance coordination among various departments for developmental projects across the state.*

*c. **Blending Traditional Knowledge with Modern Technology:** Explore the integration of traditional knowledge with modern technology to solve diverse problems effectively.*

*d. **Disaster Preparedness:** Create tailored disaster response plans, early warning systems, and resilient infrastructure to mitigate landslides, floods, and earthquakes.*

*e. **Enhancing Agricultural Practices:** Develop innovative methods to improve agricultural practices, focusing on increasing resilience, enhancing yield, and preserving biodiversity."*

*f. **Human-Wildlife Conflict Mitigation:** Propose solutions to reduce conflicts between people and wildlife, employing non-lethal deterrents, early warnings, and community-based strategies.*

*g. **Augmenting Ease of Living in Rural or Urban Areas:** Generate innovative ideas to improve the quality of life in rural or urban areas.*

#### **General Instructions:**

1. Teams will be a maximum of 4 people.
2. Teams should be made up exclusively of **participants** who are not organizers, volunteers, judges, sponsors, or in any other privileged position at the event.
3. All team members should be present at the event.
4. Teams can be disqualified from the competition at the organizers' discretion. Reasons might include but are not limited to breaking the Competition Rules, behaving in a way that violates the code of conduct or other unsporting behavior.

**NOTE to Participants:** We encourage you to explore various methods and devices to develop your projects, providing flexibility and creativity in your approach. Here are some suggestions and guidelines:

- **Hardware Solutions:** Consider utilizing devices such as Raspberry Pi, NodeMCU, Arduino, and other microcontrollers to build innovative hardware solutions for your projects. These platforms offer versatility and accessibility for developing IoT-based solutions, sensor networks, and automation systems.
- **Software Development:** Leverage simulation software such as Matlab, ETab, MiPower, Simulink, LabVIEW, and others to simulate and analyze your proposed solutions. These tools enable you to model complex systems, perform simulations, and evaluate the performance of your designs before implementation.

- **3D Modeling and Visualization:** Utilize 3D software tools such as Blender, AutoCAD, SketchUp, SolidWorks, and Fusion 360 to create visual representations and prototypes of your projects. 3D modeling software allows you to design physical structures, visualize concepts, and present your ideas in a compelling manner.
- **Presentation Format:** You have the option to present your project in various formats, including PowerPoint presentations, prototype demonstrations, and detailed project reports. PowerPoint presentations are an effective way to communicate your project's objectives, methodology, results, and potential impact. Prototypes demonstrate the functionality and feasibility of your solutions, providing tangible evidence of your innovation.
- **Documentation:** Ensure to document your project thoroughly, including design specifications, implementation details, code snippets, diagrams, and experimental results. Comprehensive documentation enhances the clarity and reproducibility of your work, facilitating evaluation and understanding by the judges and audience.

Remember, innovation knows no bounds, and we encourage you to think outside the box, experiment with new technologies, and push the boundaries of what's possible. We look forward to seeing your creative ideas and impactful solutions!

### **JUDGING PARAMETERS:**

Area (Out of 100%)	Minimal	Partial	Mastery
<b>Complete &amp; Functional -30%</b> Did the team complete the entire project?	Project does not work at all.	Project is incomplete and still needs more work to be fully functional.	Project is complete and performs desired tasks as designed through student created programming.
<b>Creativity - 30%</b> Did the team demonstrate a high level of creativity throughout the design process?	Participants demonstrated Minimal levels of creativity in their design. The project looks like it was copied off the internet.	Participants demonstrated a moderate level of creativity in their design. A few creative solutions were implemented.	Participants demonstrated a high level of creativity throughout the entire design process. The project is unique, well planned, and creative.

<p><b>Understanding - 20%</b> Did the team demonstrate a solid understanding of the software and hardware used in the project? Can team members adequately answer questions about their design?</p>	<p>Student(s) displayed little to no understanding of the software and hardware used. When asked about their design, they don't have any understanding of how it works.</p>	<p>Pre-built scripts are used to build the project. Student(s) can explain some basic concepts of how their code/circuits function.</p>	<p>Student(s) can answer specific questions about their project and the methods used to build the project. Student(s) displayed mastery in understanding of the programming language used.</p>
<p><b>Intended Purpose - 20%</b> Did all elements of the project work together to serve the intended purpose</p>	<p>No elements of the design fit the intended purpose of the project.</p>	<p>Project requires some human intervention after the machine is started. Some elements of the design are unnecessary or do not fit the intended purpose of the project. Some elements of the design do not work or are missing.</p>	<p>The project performs one or more tasks through the created programming with no human interaction or remote-control input once the machine is started. Entire machine presented a focused and efficient solution for the stated task.</p>

**\*NB: Students are advised to come in their school uniforms.**

**\*Giveaway prizes worth ₹20,000/- to promising minds among the participants.**

SD/-  
Er. Avilie Khate  
Event Head  
TECHMORPHOSIS 2024

# EVENT PROFILE

**EVENT NAME:** “TECHMORPHOSIS 2024”

**THEME:** “INNOVATION IN MOTION”

**DATE:** 26<sup>th</sup> March, 2024

**DESCRIPTION:** “TECHMORPHOSIS 2024” is NAGABOTS’ exclusive annual event for the young generation of different age groups which ranges from primary to post-graduates. This competition allows them to design, code and build their own robots and compete in different categories such as, Robochamp, Scratch, Champion etc. It also leases out platforms for the participants to choose a problem statement and engage in intensive collaboration within themselves to complete a project or come up with a solution to various problem statements.

**OBJECTIVE:** NAGABOTS, with its vision to promote an innovative culture in our society, has come up with a collaborative effort to provide the participants a platform that enables experimentation, constructive introspection, organized, and multi-stage participation attempts in a meaningful context. Our Mission is to have every child in every school become an inventor and/or entrepreneur, once better twice, in their Career and instill Problem Identification, Problem Solving, Entrepreneurship and Creativity Skills of Life, through Inventing, Innovating and Entrepreneurial Activities.

## EVENT CATEGORIES:

Sl. No	CLASS	EVENT	PROJECTS	Category	Standing	Amount
1.	3, 4, 5	Robochamp	<b>Robochamp:</b> Design any robotic car using any material such as cardboard, bamboo, wood etc.	Open	1 <sup>st</sup> Position	₹3,000/-
					2 <sup>nd</sup> Position	₹2,000/-
					3 <sup>rd</sup> Position	₹1,000/-
2.	3, 4, 5	Scratch	<b>Scratch:</b> Design any game/story using MIT scratch.	Open	1 <sup>st</sup> Position	₹3,000/-
					2 <sup>nd</sup> Position	₹2,000/-
					3 <sup>rd</sup> Position	₹1,000/-
3.	6, 7, 8	Basic Electronics	<b>Basic Electronics:</b> Using basic electrical components make any circuit/project.	Open	1 <sup>st</sup> Position	₹3,000/-
					2 <sup>nd</sup> Position	₹2,000/-
					3 <sup>rd</sup> Position	₹1,000/-
4.	6, 7, 8	App Inventor	<b>App Inventor:</b> Build any app using MIT App Inventor.	Open	1 <sup>st</sup> Position	₹3,000/-
					2 <sup>nd</sup> Position	₹2,000/-
					3 <sup>rd</sup> Position	₹1,000/-



5.	7 to 12	Line Following Bot	LFB: Make a line following bot using Arduino.	Open	1 <sup>st</sup> Position	₹5,000/-
					2 <sup>nd</sup> Position	₹3,000/-
					3 <sup>rd</sup> Position	₹2,000/-
6.	6&7	CTF	Capture the flag (Mini Hackathon): Capture the flag is an event where two or more teams participate with an objective to solve multiple problems eventually leading them to a final quest.	Open	1 <sup>st</sup> Position	₹8,000/-
7	Open to all	Innovation Challenge	Innovation Challenge is an exciting competition designed to harness the creative potential of participants and foster innovation across various domains.	Open	1 <sup>st</sup> Position	₹30,000/-

Exciting Consolation Prize worth ₹ 20,000 to be won.

**TARGET AUDIENCE:**

- Expected Foot-fall of 3500+ students.
- Industry experts and professionals.
- Government officials.
- Tech enthusiasts.
- Entrepreneurs and Innovators.
- Social Media reaches up to at least 1,00,000 individual accounts.

**PARTICIPANTS:**

- 300+ Students and Innovators.
- 20+ Schools/Institutions.

**PROGRAM DETAILS:**

A flexible program, ideally 5-6 hours.

**Benefits to Students/Participants:**

1. Student generated process - students identify and solve a problem.
2. Enhanced communication and research skills.
3. Real life opportunity to achieve something for the good of all.
4. Opportunity for original creativity and innovativeness.
5. Chance to be recognized for their innovation talent.
6. Builds the skills employers are looking for: innovation, problem solving, communication, and collaboration.

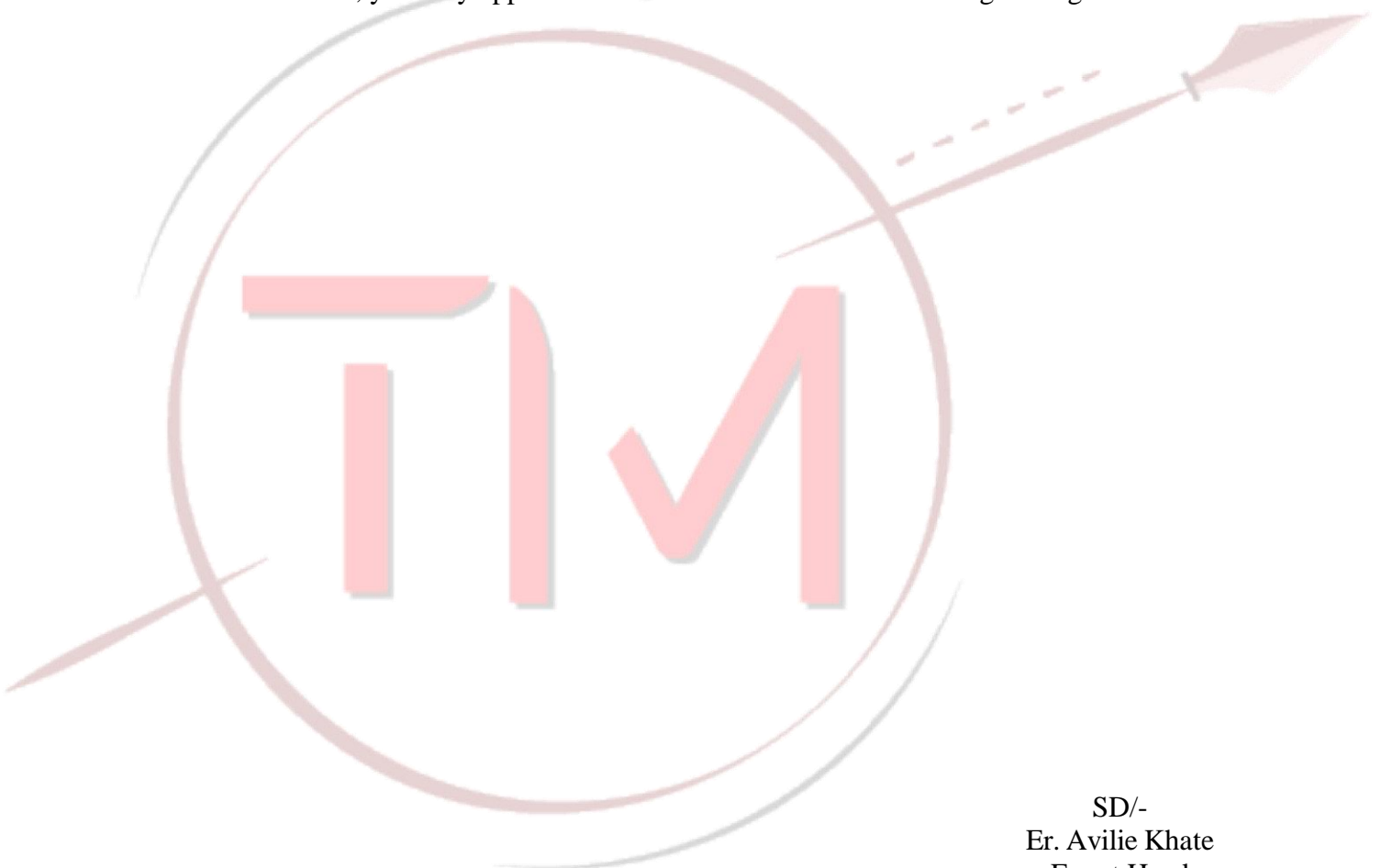
**REGISTRATION:**

Individuals are requested to visit [www.nagabots.net](http://www.nagabots.net) to register to participate at the “**TECHMORPHOSIS 2024**” event by providing their student details/personal information, and accepting the rules and terms of the events.

**REGISTRATION FEES:** N/A for NAGABOTS students. Rs. 100/- per team for general participants.

**Mode of registration:**

1. Go to [WWW.NAGABOTS.NET](http://WWW.NAGABOTS.NET) and register.
2. For school students, you may approach the school's administration for registering



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