Innovation Tracks & Thematic Domains

for "TECHATHON 2.0 - JUNIOR"

TECHATHON 2.0- JUNIOR is built on a simple but powerful belief that the most impactful innovations often begin with the most curious minds. Designed exclusively for school students from Classes 8 –12 across Madhya Pradesh, the Junior Edition presents five accessible yet intellectually rich thematic tracks designed to inspire students to think beyond the classroom, experiment with purpose, and build solutions that matter. Participants are invited to choose any one of the following tracks and develop innovations that reflect their curiosity, creativity, and commitment to meaningful problem-solving:

1. **Science for Society:** Science is most powerful when it serves people. This track invites students to apply their knowledge of physics, chemistry, biology, and mathematics to solve pressing local problems in areas such as health, environment, agriculture, and education. Whether it is a simple water-quality tester for a rural community, a low-cost waste-management tool, or an affordable diagnostic aid for primary healthcare — innovations in this track are defined by their practicality, accessibility, and direct community impact.
2. **Smart Energy & Sustainability:** The future belongs to those who build it sustainably. Students in this track are challenged to design systems or devices that improve energy efficiency, harness renewable sources, or conserve natural resources for homes, schools, and local communities. Ideas may range from solar-powered campus infrastructure and smart lighting systems to rainwater harvesting setups and waste-to-value prototypes - solutions that combine simple electronics with measurable, real-world environmental impact.
3. **AI for Everyday Life:** Artificial intelligence need not be complex to be consequential. This track introduces students to the practical possibilities of AI, inviting them to build simple, beginner-friendly tools that improve learning, safety, accessibility, or everyday productivity. Innovations could include chatbots for academic doubt resolution, image classifiers for plant or disease identification, or voice-based assistants designed to support differently-abled users — demonstrating that AI, at its best, is a tool for inclusion and empowerment.
4. **Robotics & Automation:** Where engineering meets imagination. This track challenges students to conceptualise and build robots or automated systems — from line-following bots and inspection robots to simple wheeled platforms for material handling or monitoring tasks. The emphasis is not on complexity, but on clarity: a

deep understanding of working principles - sensors, motors, and basic microcontrollers — and a convincing demonstration of autonomy or semi-autonomy in action.

5. **Innovation for Schools:** The best place to begin changing the world is where you already are. This track invites students to design tools and solutions that enhance teaching, learning, laboratory work, or school administration. Innovations could take the form of digital dashboards, IoT-based classroom environment sensors, or physical experiment kits that make science safer and more engaging — creating tangible value for both educators and students within the school ecosystem.