# Curiosity Protocol

## CURIOSITY PROTOCOL 2026

**21 October 2026 | Elysian 2026 | GGSIPU East Delhi Campus**

### 1. Overview

Curiosity Protocol 2026 was an interactive science treasure hunt followed by a quiz, organised by CurieUs, the Science Club of the University School of Automation & Robotics (USAR), Guru Gobind Singh Indraprastha University (GGSIPU), East Delhi Campus, as part of Elysian 2026, the university's technical and cultural fest. Held on 21 October 2026, the event brought scientific curiosity into the campus environment through a format that combined clue-solving, QR-code checkpoints, question-based challenges, route navigation, and a concluding quiz round. Rather than limiting participation to a conventional question-and-answer setting, the activity encouraged teams to explore different campus locations and work through a sequence of challenges.

The event combined physical coordination with a purpose-built digital system. Volunteers stationed at designated locations facilitated the checkpoint stage, while a WhatsApp group was used to distribute clues and guide teams through the hunt. A custom application tracked scores, and the highest-performing teams progressed to the quiz conducted in Room A-209 by Dr. Pooja Rana and Dr. Mahesh Chand.

### 2. Objectives

The primary objective was to promote scientific awareness and intellectual engagement through an enjoyable, interactive competition. The treasure hunt encouraged participants to interpret clues, identify locations, coordinate with teammates, and answer questions as they progressed. The quiz round offered a further opportunity to demonstrate knowledge and reasoning in a structured competitive setting.

The event also aimed to encourage collaboration, communication, observation, logical deduction, and decision-making under time constraints. By integrating QR codes, a digital scoring application, and an online communication channel with an on-campus activity, Curiosity Protocol demonstrated how technology can support the organisation of an interactive student event. It also sought to strengthen the culture of scientific curiosity and peer learning within the university community.

## 3. Event Structure and Execution

**Round 1 — Campus Treasure Hunt:** The first phase took place across multiple locations on the university campus. At least 20 volunteers were arranged into groups of two to three members and deployed to designated checkpoints. Each volunteer group was provided with QR codes for use at its assigned location. This deployment created a distributed checkpoint network across the campus and enabled participants to move from one location to another as they solved the hunt.

**Clue Distribution and Team Navigation:** Participants were added to a WhatsApp group, where hints were posted to direct them towards the next checkpoint. Teams had to interpret each clue, navigate to the indicated campus location, and locate the volunteer stationed



there. This structure linked each stage of the activity to the next and encouraged teams to communicate and coordinate their movements while progressing through the route.

**QR-Code Questions:** At a checkpoint, participants scanned the QR code held by the volunteer and answered the question presented by the system. Once the checkpoint interaction was completed, the team received the hint for the next location. The QR-based workflow connected physical locations with digital questions and helped organise the hunt as a sequence of verifiable checkpoints rather than an unstructured search across the campus.

**Scoring and Progression:** A custom-developed application was used to track scores during the treasure hunt. The system supported the monitoring of team performance, while the checkpoint sequence provided a defined structure for the activity. After the hunt, the top-performing teams were selected to advance to the second phase.

**Round 2 — Science Quiz:** The concluding quiz round was held in Room A-209 and conducted by Dr. Pooja Rana and Dr. Mahesh Chand. Teams that performed strongly in the treasure hunt competed in this knowledge-based stage. The quiz complemented the campus activity by placing participants in a formal setting where they could apply their knowledge and demonstrate analytical thinking. Together, the two phases combined exploration and problem-solving with a conventional quiz format.

## 4. Software Architecture and Technical Implementation

Curiosity Protocol was supported by a custom web application designed to coordinate team routes, checkpoint validation, question attempts, scoring, and event administration. The software connected the physical QR checkpoints with a server-controlled workflow, providing a common system for participants and administrators.

**Technology Stack:** The frontend is built with React and TypeScript. The backend uses Express and is deployed on Vercel, while a Turso SQLite database stores team information, routes, attempts, and scores. This separation of the user interface, server logic, and persistent data supports the different functions required to run the event.

**Route Generation and Uniqueness:** Each team receives a saved, independently shuffled route pairing 14 questions with 14 real locations. A SHA-256 fingerprint is used to check route uniqueness. Saving each team's route provides a persistent reference for the checkpoint sequence assigned to that team.

**QR Tokens and Checkpoint Validation:** QR codes contain random location tokens. When a team scans a code, the backend checks the authenticated team's scan against its expected checkpoint before revealing the assigned question. This validation links a scan to the team's route and helps ensure that the next question is disclosed only when the expected checkpoint is reached in the system.

**Timed Attempts and Answer Handling:** The server controls each 30-second attempt, validates submitted answers, and calculates points and penalties. If an answer is incorrect or the attempt times out, the team must visit an assigned decoy location and then return to



retry the same question. This rule makes the checkpoint process part of the challenge rather than allowing teams to retry without completing the required route action.

**Data Integrity:** Database transactions prevent duplicate submissions from awarding points twice. This safeguard is important in a competitive event where multiple teams interact with the system and scores must remain consistent. The application stores the records needed to track teams, routes, attempts, and scores throughout the hunt.

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**Administrative Portal:** The admin portal provides tools for managing content, exporting QR codes, generating routes, controlling event timing, viewing analytics, and managing leaderboard visibility. These functions support preparation before the event as well as monitoring and administration while the activity is underway.

## 5. Highlights and Learning Outcomes

A key feature of Curiosity Protocol was its integration of campus exploration with digital interaction. The QR-code checkpoints made questions part of the physical route, while the WhatsApp group provided a shared channel for clue distribution. The custom application added a structured scoring mechanism, and the final quiz gave the top-performing teams an additional platform to demonstrate their knowledge.

The format encouraged teamwork and communication because participants had to interpret hints, decide how to proceed, reach designated locations, and complete checkpoint interactions. The timed attempts and route rules also introduced an element of time-sensitive decision-making. From an organisational perspective, the event brought together volunteers distributed around campus, digital coordination, route management, and faculty-led quiz administration.

The use of a dedicated software stack illustrates how web technologies and a database can support a live, location-based student activity. Features such as saved routes, checkpoint validation, controlled attempts, and safeguards against duplicate scoring helped formalise the hunt's rules and recordkeeping. The event therefore combined scientific and knowledge-based engagement with practical use of digital systems.

## 6. Faculty Coordinators

Dr. Kriti Batra, Dr. Pooja Rana, and Dr. Mahesh Chand.

## 7. Club Officebearers

Kapish Chauhan, Saksham Kumar Aggarwal, Yashavii Awasthi, Shubham Rathee, and Bhavik Malik.

## 8. Acknowledgments and Conclusion

CurieUs expresses its sincere gratitude to the faculty coordinators—Dr. Kriti Batra, Dr. Pooja Rana, and Dr. Mahesh Chand—for their guidance and support, including the conduct of the quiz round by Dr. Pooja Rana and Dr. Mahesh Chand. The club also acknowledges the university administration for providing the setting for the event as part of Elysian 2026, and thanks the volunteers whose deployment across campus helped the treasure hunt proceed through its checkpoints.



Curiosity Protocol 2026 brought together scientific curiosity, teamwork, campus exploration, and technology in a multi-stage competition. Its combination of clue-based navigation, QR-code questions, digital score tracking, and a final quiz offered participants an engaging alternative to a conventional quiz alone. The event contributed to the academic and extracurricular life of GGSIPU East Delhi Campus by encouraging analytical thinking, collaboration, and active engagement with science.


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