Report on "Smart India Hackathon 2023 - Software Edition"

(19th - 20th December 2023)

1. Introduction:

The Smart India Hackathon 2023 - Software Edition was held on 19th - 20th December 2023 as part of a national initiative to encourage innovation and problem-solving among young engineers. Team Agnijawal, led by Arka Banik, from the Electrical Engineering (EE) Department of Regent Education and Research Foundation Group of Institutions participated in this prestigious event. They tackled a problem statement related to AI-based generative design of hydro power plants (Statement ID 1296) under the Renewable/Sustainable Energy (Software) domain.

The team's solution integrated a hydroelectric power plant with floating solar panels and a river cleaning mechanism, addressing multiple sustainability challenges at once. Their project was not only a theoretical success but also showcased an innovative demonstrative model, presenting a comprehensive and practical solution to the problem.

2. Objective:

The main objectives for participating in the Smart India Hackathon 2023 - Software Edition were:

- To encourage students to create innovative solutions to real-world problems using technology.
- To provide a platform where students can apply academic learning to real-world, industry-driven challenges.
- To enhance problem-solving, teamwork, and technical skills.
- To offer networking opportunities with mentors, industry professionals, and other student teams.

3. Event Overview:

The Smart India Hackathon 2023 - Software Edition took place on 19th - 20th December 2023 and brought together teams from all over India to solve problem statements posed by government bodies and industries. Team Agnijawal participated in the Renewable/Sustainable Energy (Software) domain, focusing on an AI-driven solution for the design of hydro power plants.

Team Agnijawal presented a comprehensive solution integrating hydroelectric power with floating solar panels and a river cleaning mechanism, a unique approach that tackles both energy generation and environmental sustainability. Their solution was evaluated based on innovation, technical feasibility, and the potential real-world impact.

The Grand Finale of the event was held at **Royal Global University, Guwahati, Assam**, providing a vibrant platform for showcasing their innovation.

4. Team Members:

Position	Name	Gender (M/F)	Email id	Mobile no.
Team Leader	Arka Banik	M	118111cr7@gmail.com	6291938346
Team Member	Avishek Majumder	M	augd773@gmail.com	8637318464
Team Member	Akash Das	M	adas49783@gmail.com	6296697681
Team Member	Sourav Biswas	M	sourav26082002@gmail.com	9836448113
Team Member	Preity Purkait	F	purkaitpreity1517@gmail.com	7980199384
Team Member	Yogesh Kumar Sharma	M	yogeshkumarsharma276@gmail.com	7980151889

5. Project Heading:

AI-Based Generative Design of Hydroelectric Power Plants with Floating Solar Panels and River Cleaning Mechanism
(Problem Statement ID 1296)
Domain: Renewable/Sustainable Energy (Software)

Project Overview: Team Agnijawal's innovative solution integrates hydroelectric power with floating solar panels and a river cleaning mechanism. The project was a combination of cutting-edge AI-based generative design and sustainability principles. The team developed a solution that could significantly enhance the efficiency of hydro power plants by combining them with solar energy and simultaneously address environmental concerns through river cleaning technologies.

Their solution was demonstrated with a working model that vividly depicted how the components of the hydro power plant, floating solar panels, and river cleaning system could be integrated for a more sustainable future. This was not only a theoretical approach but a practical model with real-world applicability, showcasing their understanding of energy generation, environmental preservation, and sustainable development.

6. Highlights of the Event:

- **Innovative Solution:** Team Agnijawal's project stood out for its holistic approach to the problem statement, addressing both energy production and environmental sustainability.
- **Demonstrative Model:** The team presented a working model that demonstrated the integration of hydroelectric power generation with floating solar panels and river cleaning, impressing judges with its practicality and technical execution.
- **AI-based Design:** The use of AI algorithms for optimizing the placement and configuration of floating solar panels on hydro power plants was a key highlight of their solution.

- **Collaboration and Networking:** The event provided a platform for Team Agnijawal to interact with mentors, industry professionals, and other student teams, enhancing their learning experience and opening doors for future collaborations.

7. Achievements:

- **Recognition for Innovation:** The team received accolades for their creative approach and technical execution, particularly for the novel integration of multiple sustainability technologies.
- **Skill Enhancement:** Participating in this hackathon allowed the team to sharpen their AI, software development, and problem-solving skills, especially in the areas of renewable energy and sustainable development.
- **Institutional Pride:** Team Agnijawal's achievement brought national recognition to Regent Education and Research Foundation Group of Institutions, underscoring the institution's commitment to fostering innovation and technical excellence.
- **Networking Opportunities:** The hackathon served as an excellent platform for the team to network with experts in the fields of renewable energy, AI, and sustainable technologies, broadening their professional horizons.

8. Announcement of Grand Finale Selection:

Team Agnijawal from Regent Education and Research Foundation Group of Institutions was **officially selected for the Grand Finale of Smart India Hackathon 2023 - Software Edition at Royal Global University, Guwahati, Assam** and **awarded as Runner-ups in the prestigious event**. This remarkable achievement highlights the team's dedication, innovation, and technical expertise.

9. Certificates:

College SPOC Certificate: Bipul Dhali (SPOC)

Student Participants Certificates: Arka Banik, Avishek Majumder, Akash Das, Sourav Biswas, Preity Purkait, Yogesh Kumar Sharma.


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Government of India
MoE's INNOVATION CELL (GOVERNMENT OF INDIA)
Azadi Ka Amrit Mahotsav
SMART INDIA HACKATHON 2023
#SIH Senior Software Edition
GRAND FINALE 2023
December 19-20
Participation
Certificate
This Certificate is awarded to
Akash Das
for participating in Smart India Hackathon, 2023
Sh. K Sanjay Murthy
Secretary, Higher Education, Ministry of Education
Prof. T. G. Sitharam
Chairman, AICTE
Ministry of Education
Dr. Abhay Jere
Vice Chairman AICTE & Chief Innovation Officer (CIO), Ministry of Education
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Participation
Certificate
This Certificate is awarded to
Sourav Biswas
for participating in Smart India Hackathon, 2023
Sh. K Sanjay Murthy
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Chairman, AICTE
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This Certificate is awarded to
Preeti Purkait
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Yogesh Kumar Sharma
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9. Event's Photographs:

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10. Conclusion:

The Smart India Hackathon 2023 - Software Edition was an enriching experience for Team Agnijawal and Regent Education and Research Foundation Group of Institutions. By addressing an important sustainability challenge in the field of renewable energy, the team successfully demonstrated how cutting-edge AI and environmental technologies can be integrated to create impactful solutions.

Principal
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