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<p>(51) International classification :C25B0001040000, C01B0032500000, G06Q0010100000, C10G0001000000, C12P0003000000</p> <p>(86) International Application No :NA Filing Date :NA</p> <p>(87) International Publication No : NA</p> <p>(61) Patent of Addition to Application Number :NA Filing Date :NA</p> <p>(62) Divisional to Application Number :NA Filing Date :NA</p>	<p>(71)Name of Applicant : 1)Ms. M. Suganya Address of Applicant :Associate Professor, Department of Chemistry, Sri Sairam Engineering College, West Tambaram, Chennai, Tamilnadu, India, Pincode: 600044 -----</p> <p>2)Dr. N. Pallavi 3)Dr. Nellore Manoj Kumar 4)Dr. G. Raja 5)Dr. K.A. Emmanuel 6)Dr. Suresh Kumar 7)Dr. Ritu 8)Dr. Sanjay Kumar Singh</p> <p>Name of Applicant : NA Address of Applicant : NA</p> <p>(72)Name of Inventor : 1)Ms. M. Suganya Address of Applicant :Associate Professor, Department of Chemistry, Sri Sairam Engineering College, West Tambaram, Chennai, Tamilnadu, India, Pincode: 600044 -----</p> <p>2)Dr. N. Pallavi Address of Applicant :Associate Professor, Department of Environmental Science, JSS Academy of Higher Education & Research, Mysuru, Karnataka, India, Pincode: 570015 -----</p> <p>3)Dr. Nellore Manoj Kumar Address of Applicant :Independent Researcher, Infinite Research, Founder and CEO, B.O. 15-225, Gollapalem, Venkatagiri, Tirupati District, Andhra Pradesh, India, Pincode: 524132 -----</p> <p>4)Dr. G. Raja Address of Applicant :Professor, Department of Chemistry, Paavai Engineering College (Autonomous), Pachal Post, Namakkal District, Tamilnadu, India, Pincode: 637018 -----</p> <p>5)Dr. K.A. Emmanuel Address of Applicant :Professor, Department of Chemistry, Y.V.N.R. Government Degree College, Kaikaluru, Eluru, Andhra Pradesh, India, Pincode: 521333 -----</p> <p>6)Dr. Suresh Kumar Address of Applicant :Assistant Professor, Department of Chemistry, Government (P.G.) College, Kotdwar, Pauri Garhwal, Uttarakhand, India, Pincode: 246149 -----</p> <p>7)Dr. Ritu Address of Applicant :Associate Professor, Department of Chemistry, Chhotu Ram Arya College, Sonapat, Haryana, India, Pincode: 131001 -----</p> <p>8)Dr. Sanjay Kumar Singh Address of Applicant :Professor, Department of Applied Sciences & Humanities, Institute of Engineering and Technology, Lucknow, Uttar Pradesh, India, Pincode: 226021 -----</p>
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(57) Abstract :

The present invention discloses a decentralized system for clean hydrogen production through advanced plastic waste decomposition. The system leverages state-of-the-art technologies in catalysis, chemical engineering, and material science to efficiently convert plastic waste into hydrogen gas. Designed for adaptability, the method accommodates varying waste compositions and geographical contexts, ensuring versatile applicability. By repurposing plastic waste as a sustainable feedstock for hydrogen production, the invention contributes to global decarbonization efforts and fosters a circular economy model. The decentralized nature of the waste-to-hydrogen production process provides strategic advantages in logistics, scalability, and community engagement. Positioned as a transformative force in waste management and energy production, the invention aligns with international sustainability goals, showcasing adaptability to diverse socio-economic contexts and the potential to stimulate economic growth and job creation. This collaborative endeavor exemplifies the interdisciplinary nature of its development, representing the transformative potential of human innovation in creating a sustainable future.

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