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(71)Name of Applicant :

**1)Swami Vivekananda University**

Address of Applicant :Telinipara, Barasat - Barrackpore Rd, Bara Kanthalia, Kolkata, West Bengal 700121, India. -----

**Name of Applicant : NA**

**Address of Applicant : NA**

(72)Name of Inventor :

**1)Mr. Suman Kumar Ghosh**

Address of Applicant :Swami Vivekananda University, Telinipara, Barasat - Barrackpore Rd, Bara Kanthalia, Kolkata, West Bengal 700121, India. -----

**2)Mr. Soumya Ghosh**

Address of Applicant :Swami Vivekananda University, Telinipara, Barasat - Barrackpore Rd, Bara Kanthalia, Kolkata, West Bengal 700121, India. -----

**3)Mr. Abhishek Poddar**

Address of Applicant :Swami Vivekananda University, Telinipara, Barasat - Barrackpore Rd, Bara Kanthalia, Kolkata, West Bengal 700121, India. -----

**4)Mr. Anupam Mallick**

Address of Applicant :Swami Vivekananda University, Telinipara, Barasat - Barrackpore Rd, Bara Kanthalia, Kolkata, West Bengal 700121, India. -----

**5)Mr. Sayan Paul**

Address of Applicant :Swami Vivekananda University, Telinipara, Barasat - Barrackpore Rd, Bara Kanthalia, Kolkata, West Bengal 700121, India. -----

**6)Dr. Samrat Biswas**

Address of Applicant :Swami Vivekananda University, Telinipara, Barasat - Barrackpore Rd, Bara Kanthalia, Kolkata, West Bengal 700121, India. -----

**7)Mr. Buddhadev Ghosh**

Address of Applicant :Swami Vivekananda University, Telinipara, Barasat - Barrackpore Rd, Bara Kanthalia, Kolkata, West Bengal 700121, India. -----

**8)Mr. Chandan Bag**

Address of Applicant :Swami Vivekananda University, Telinipara, Barasat - Barrackpore Rd, Bara Kanthalia, Kolkata, West Bengal 700121, India. -----

(57) Abstract :

The invention discloses a modular submersible vessel integrated with a pressure-resistant driving bell, enabling safe, extended underwater operations for research, rescue, and maintenance purposes. The system comprises a primary hull with an internally supported driving bell, adaptive buoyancy control, AI-based autonomous/semi-autonomous navigation, and an integrated life-support system. A multi-directional propulsion system ensures precise maneuverability, while the vessel's real-time communication interface supports live data transmission, sonar mapping, and remote interaction. The vessel is capable of fixed-position station-keeping and features modular tool bays for mission-specific configurations. Unlike traditional diving bells dependent on surface platforms, the present invention allows for greater operational flexibility, self-sufficiency, and long-duration deployment in deep-sea environments.

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