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~Mentoring batch -5

Introduction

Before going forward with the report, I would like to present a brief on the process used. The aim of the report is to concisely present the patents on "Ocean data management application platform". I used the Derwent innovation tool, US Patent Database and Indian Patent Database to search for patents using keywords related to the topic.
I analysed the relevant search results and prepared a brief of 4 patents related to "Ocean data management application platform". I also consulted online sources to understand some of the concepts behind the technologies.

Patent 1- CN113487094A

Patent Title: Ocean data management application platform .
Patent applicant: Beijing Ocean Data Service Technology Co., Ltd.
Publication date: 08-10-2021

The "**marine data management application platform**" patent is significant because it has the potential to revolutionise the way that marine data is managed and used. The platform offers a number of advantages over traditional marine data management systems, including:

- **Comprehensive and integrated**: The platform collects and integrates data from a variety of sources, providing users with a single, holistic view of marine conditions.
- **Efficient and scalable**: The platform's modular architecture makes it efficient and scalable, allowing it to handle large volumes of data from a variety of sources.
- **User-friendly**: The platform provides a user-friendly interface and a variety of visualisation tools, making it easy for users to access, understand, and analyse the data.

Patent Overview:

- The platform collects marine data from a variety of sources, including positioning systems and environmental monitoring sensors.
- The collected data is transmitted to the platform's service layer, where it is stored and managed.
- The platform provides a variety of services for managing the data, including storage, retrieval, processing, and visualisation.
- The platform also provides several specific application modules that are designed to meet the needs of different users in the marine industry.
- These modules include tools for hydro-meteorological monitoring, safety operations, emergency response, oil spill prediction, and disaster forecasting.

Overall, the platform is a valuable tool for managing and analysing marine data, and it can be used to support a wide range of marine-related applications.

Patent 2- CN108092802(B)

Patent Title: Numerical Prediction and Maintenance System and Method for the Nuclear Power Device of Marine Nuclear Power Platforms.

Patent applicant: China Telecom.
Publication date: 09-02-2021

The invention discloses a numerical prediction and maintenance system and method for the nuclear power device of marine nuclear power platforms, which is related to the field of management of nuclear power devices on marine nuclear power platforms. It includes:

- A sensor network subsystem used for collecting and transmitting real-time operational data of target devices of the nuclear power device.
- A data storage subsystem for distributed storage of real-time operational data of target devices.
- The numerical prediction and maintenance system for the nuclear power device of marine nuclear power platforms disclosed in this invention provides accurate positioning, improves the reliability of nuclear power devices, overcomes the blindness and high specificity of regular maintenance, and is efficient.

The advantages of the system and method include:

- Increased reliability: The system can help to identify and prevent failures before they occur. This can help to improve the reliability of the nuclear power unit.
- Overcomes the blindness of regular maintenance: The system can identify failures that would not be detected by regular maintenance. This can help to prevent failures from occurring.
- Strong pertinence and efficiency: The system can accurately predict the location and status information of the target device that will fail. This can help operators to take corrective action quickly and efficiently.

Patent 3- CN114880370A

Patent Title: A Method and System for Managing Marine Environmental Monitoring Patent applicant
Publish date: 08-9-2022
Patent applicant: Beijing Ocean Data Service Technology Co., Ltd.

The patent titled "A Method and System for Managing Marine Environmental Monitoring Data" describes a system for collecting, storing, and managing marine environmental monitoring data. The system consists of two main components:

- A marine observation data collection system
- A marine observation data management system

The two systems are connected through a transmission module.

The marine observation data management system consists of the following components: Data observation modules , Data statistics modules, Data audit modules , Communication modules ,Storage modules, Automatic archiving, reporting modules, Automatic upload modules

Here are some of the potential benefits of using this system:

- Comprehensive and integrated data collection and management
- Efficient and scalable architecture
- User-friendly interface
- Support for a wide range of marine-related applications
- Automatic archiving and reporting
- Automatic upload to a remote server

Overall, this system is a significant step forward in the field of marine environmental monitoring data management. It has the potential to make a significant contribution to the protection of the marine environment.

Patent 4 - CN114911863A

Patent title: A Data Processing Method for Marine Spatial Resource Monitoring Platform
Publish date: 16-08-22
Patent applicant: China Electronics Technology Group Corporation.

The patent "A Data Processing Method for Marine Spatial Resource Monitoring Platform" presents a comprehensive, flexible, and data-driven approach to marine spatial resource monitoring data processing. It covers all aspects of data processing, from data modelling and metadata management to real-time spatial data access and data connection and integration

Benefits of the invention:

The invention has the potential to significantly improve the efficiency and quality of marine spatial resource monitoring data processing. This can lead to a number of benefits, including:

- Improved decision-making in marine environmental protection
- Better management of marine resources
- Enhanced sustainability of marine ecosystems

Overall, the invention presents a promising new approach to marine spatial resource monitoring data processing. It has the potential to make a significant contribution to the protection and sustainable management of marine ecosystems.

BIS IS 2506 : 2022

TMI Assignment on Bureau of Indian Standards (BIS) Standards

1. **Title and Scope of the Allotted Standard**
    - Title: General requirements for concrete vibrators, screed board type
    - Scope: This standard lays down the requirements for materials, sizes,construction,assembly and performance of the screed board concrete vibrators.

2. **Historical Background:**
    - The first Indian Standard for concrete vibrators was published in 1952 as IS 2506:1952 , as the use of concrete in construction increased rapidly.
    - The revision of the standard in 2022 is a significant step forward, as it incorporates the latest international standards and best practices.
    - The revised standard is expected to play a major role in ensuring the quality and safety of concrete vibrators manufactured in India.

3. **Applicability and Industries Affected**
    - IS 2506:2022 applies to concrete vibrators of the screed board type.
    - The standard covers vibrators that are used to consolidate concrete in slabs, beams, columns, and other similar structures.
    - IS 2506:2022 is applicable to concrete vibrators used in the construction of Buildings,bridges,dams,tunnels, roads,AirFields, marine structures,etc.
    - There are many industries affected by IS 2506:2022 , those are
        i. Construction industry.
        ii. Precast concrete industry.
        iii. Concrete products industry.
        iv. Civil engineering industry.
        v. Infrastructure development industry.
4. **Key Requirements of the Standard:**
    - Materials and construction: Material must withstand stresses and vibrations during use

- Performance requirements: Vibration frequency of at least 3000 vibrations per minute and vibrations amplitude of at least 0.5mm.
- Testing and inspection: Endurance test, vibration frequency test, vibration amplitude test, and noise level test .
- Marking and packing: Manufacturer's name or trademark, type of vibrator, serial number, date of manufacture, mass.

5. **Benefits and Significance:**
   - Benefits of IS 2506:2022 are:
     i. Improved concrete quality :Concrete vibrators help to remove air bubbles from concrete, which results in a denser and more durable concrete.
     ii. Increased concrete strength and durability.
     iii. Reduced concrete porosity: Porous concrete is more susceptible to damage from water and other elements. Concrete vibrators can help to reduce the porosity of concrete, making it more durable.
     iv. Reduced construction time: Concrete vibrators can help to reduce the time it takes for concrete to set. This can lead to shorter construction times and lower costs.
     v. Improved worker safety: Concrete vibrators can help to reduce the risk of injury to workers by eliminating the need for manual vibration.
   - Significance of IS 2506:2022: It is a mandatory standard for the manufacture and sale of concrete vibrators in India. The standard helps to ensure that concrete vibrators are manufactured to a high quality and that they meet the performance requirements necessary to achieve the benefits listed above. The standard also helps to protect workers from the risks associated with manual vibration.

6. **Challenges and Limitations:**
   - Challenges:Over-vibration, damage to formwork, Noise pollution, cost of purchasing and maintenance.
   - Limitations: This standard does not address the issue of over-vibration, damage to formwork, noise pollution, cost.

7. **Compliance and Certification:**
   - Compliance with IS 2506:2022 is mandatory for the manufacture and sale of concrete vibrators in India. Manufacturers must

ensure that their products meet all the requirements of the standard.
    - Certification from a recognized testing laboratory can demonstrate compliance and provide a competitive advantage. BIS certification is a mark of quality that is recognized throughout India.

8. **Impact on Society and Environment:**
    - Improved infrastructure quality and durability.
    - Reduced environmental impact
    - Enhanced worker safety
    - Improved economic development.

9. **Case Studies:**
    - Construction of delhi metro: Concrete vibrators were used to ensure that the concrete was properly consolidated and that air bubbles were removed.
    - Construction of the Sardar Sarovar Dam:Concrete vibrators were used to ensure that the concrete was properly consolidated and that air bubbles were removed. The use of concrete vibrators helped to ensure the high quality and durability of the Sardar Sarovar Dam.
    - Construction of the Bandra-Worli Sea Link: The use of concrete vibrators helped to ensure the high quality and durability of the concrete used in the construction of the Bandra-Worli Sea Link.

10. **Conclusion:**
    - IS 2506:2022 is a comprehensive standard that provides guidance on the design, manufacture, testing, and marking of concrete vibrators of the screed board type.
    - This is a comprehensive standard that provides guidance on the design, manufacture, testing, and marking of concrete vibrators of the screed board type.

11. **References:**

    - https://standards.bsb.co.in/SearchList.aspx
    - https://www.google.com/

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