Patent Search

Invention Title	Predictive Analytics-based Stochastic Differential Equation Inventory Model for Demand Forecasting
Publication Number	35/2023
Publication Date	01/09/2023
Publication Type	INA
Application Number	202341048739
Application Filing Date	19/07/2023
Priority Number	
Priority Country	
Priority Date	
Field Of Invention	COMPUTER SCIENCE
Classification (IPC)	G06Q0010080000, G06Q0030020000, G06Q0010060000, G06Q0010040000, G06F0017130000

Inventor

Name	Address	Country
Dr. T. Gunasekar	Professor, Department of Mathematics, Vel Tech Rangarajan Dr. Sagunthala R&D Institute of Science and Technology (Deemed to be University), Avadi, Chennai, Tamilnadu, India, Pincode:600062	India
Dr. K. Kumara Swamy	Assistant Professor, Department of Mathematics, GMR Institute of Technology, Rajam, Vizianagaram, Andhra Pradesh, India, Pincode:532127	India
Dr. M. Lakshmi Soujanya	Associate Professor, Department of Mathematics, Marri Laxman Reddy Institute of Technology & Management (A), Dundigal, Medchal, Hyderabad, Telangana, India, Pincode:500043	India
Dr. B. Reddappa	Associate Professor, Department of Mathematics, School of Advanced Sciences, Kalasalingam Academy of Research and Education (Deemed to be University), Krishnankoil, Srivilliputhur, Tamilnadu, Pincode:626126	India
Mr. Alladi Sathish Kumar	Assistant Professor, Department of Electrical and Electronics Engineering, Institute of Aeronautical Engineering, Dundigal, Hyderabad, Telangana, India, Pincode: 500043	India
Dr. Hemant Kumar Saw	Assistant Professor, Department of Mathematics, Govt. Digvijay Autonomous P G College, Rajnandgaon, Chhattisgarh, India, Pincode: 491441	India
Mr. Ashok Kumar Adil	Assistant Professor, Department of Mathematics, Government Nagarjuna Post Graduate Science College, Raipur, Chhattisgarh, India, Pincode: 492001	India
Dr. Animesh Kumar Sharma	Assistant Professor, Department of Mathematics, Faculty of Science and Technology, The ICFAI University, Raipur, Chhattisgarh, India, Pincode: 492001	India
Dr. Shanti Swarup Dubey	Associate Professor, Department of Mathematics, The ICFAI University, Raipur, Chhattisgarh, India, Pincode: 492001	India
Mrs. Akkaraju Lalitha	Adjunct Faculty, Faculty of Management and Commerce, PES University, Bengaluru, Karnataka, India, Pincode: 560085	India

Applicant

Name	Address	Country
Dr. T. Gunasekar	Professor, Department of Mathematics, Vel Tech Rangarajan Dr. Sagunthala R&D Institute of Science and Technology (Deemed to be University), Avadi, Chennai, Tamilnadu, India, Pincode:600062	India
Dr. K. Kumara Swamy	Assistant Professor, Department of Mathematics, GMR Institute of Technology, Rajam, Vizianagaram, Andhra Pradesh, India, Pincode:532127	India
Dr. M. Lakshmi Soujanya	Associate Professor, Department of Mathematics, Marri Laxman Reddy Institute of Technology & Management (A), Dundigal, Medchal, Hyderabad, Telangana, India, Pincode:500043	India
Dr. B. Reddappa	Associate Professor, Department of Mathematics, School of Advanced Sciences, Kalasalingam Academy of Research and Education (Deemed to be University), Krishnankoil, Srivilliputhur, Tamilnadu, Pincode:626126	India
Mr. Alladi Sathish Kumar	Assistant Professor, Department of Electrical and Electronics Engineering, Institute of Aeronautical Engineering, Dundigal, Hyderabad, Telangana, India, Pincode: 500043	India
Dr. Hemant Kumar Saw	Assistant Professor, Department of Mathematics, Govt. Digvijay Autonomous P G College, Rajnandgaon, Chhattisgarh, India, Pincode: 491441	India
Mr. Ashok Kumar Adil	Assistant Professor, Department of Mathematics, Government Nagarjuna Post Graduate Science College, Raipur, Chhattisgarh, India, Pincode: 492001	India
Dr. Animesh Kumar Sharma	Assistant Professor, Department of Mathematics, Faculty of Science and Technology, The ICFAI University, Raipur, Chhattisgarh, India, Pincode: 492001	India
Dr. Shanti Swarup Dubey	Associate Professor, Department of Mathematics, The ICFAI University, Raipur, Chhattisgarh, India, Pincode: 492001	India
Mrs. Akkaraju Lalitha	Adjunct Faculty, Faculty of Management and Commerce, PES University, Bengaluru, Karnataka, India, Pincode: 560085	India

Abstract:

The Predictive Analytics-based Stochastic Differential Equation Inventory Model for Demand Forecasting is a revolutionary approach that combines predictive analytic stochastic differential equations to optimize inventory management and enhance demand forecasting accuracy. By leveraging advanced analytics techniques and ma modelling, this field of invention addresses the limitations of traditional inventory models and accounts for the dynamic and uncertain nature of market demand. The incorporates historical sales data, market trends, and external factors to generate accurate demand forecasts, while stochastic differential equations capture and qua inherent uncertainty in demand fluctuations. This comprehensive approach enables businesses to optimize inventory levels, minimize excess costs, improve producti enhance distribution strategies, and make data-driven decisions. The proposed model offers significant potential to revolutionize inventory management practices, d operational efficiency, and achieve competitive advantages in today's dynamic marketplace.

Complete Specification

Description:The Predictive Analytics-based Stochastic Differential Equation Inventory Model for Demand Forecasting is an innovative approach that leverages the po predictive analytics and stochastic differential equations to optimize inventory management and enhance demand forecasting accuracy. This cutting-edge field of in combines principles from mathematics, statistics, and computer science to revolutionize the way businesses handle inventory planning, production, and distributio

Background of the invention:

Effective inventory management is crucial for businesses across various industries to meet customer demand while minimizing costs. Traditional inventory models rely on static assumptions, deterministic equations, and historical data, which may not capture the inherent uncertainty and dynamics of real-world demand patter result, businesses face challenges such as stockouts, excess inventory, and suboptimal production and distribution decisions.

To overcome these limitations, the proposed field of invention introduces a novel approach that integrates predictive analytics and stochastic differential equations into inventory management for demand forecasting. By leveraging the power of advanced analytics and mathematical modeling, this field aims to provide business a more accurate and robust inventory optimization framework.

Predictive analytics has gained significant attention in recent years due to advancements in computing power, data availability, and machine learning algorithms. Th techniques enable businesses to extract insights from vast amounts of historical data, identify patterns, and make predictions about future demand. However, appl predictive analytics solely to demand forecasting overlooks the inherent uncertainties associated with demand fluctuations.

Stochastic differential equations offer a powerful mathematical framework to capture and model uncertainty in dynamic systems. Unlike traditional differential equ SDEs incorporate random variables or stochastic processes, allowing for the inclusion of probabilistic elements in the modelling process. This makes them well-suit

View Application Status