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(71)Name of Applicant :

**1)Major Dr. V. A. Narayana**  
 Address of Applicant :Professor, Computer Science Engineering, CMR College of Engineering & Technology, Kandlakoya, Medchal, Hyderabad, Telangana, India. 501401 Hyderabad -----

**2)Dr. P. Sruthi**  
**Name of Applicant : NA**  
**Address of Applicant : NA**

(72)Name of Inventor :

**1)Mr. Abdul Subhani Shaik**  
 Address of Applicant :Associate Professor, Electronics & Communication Engineering, CMR College of Engineering & Technology, Kandlakoya, Medchal, Hyderabad, Telangana, India. 501401 Hyderabad -----

**2)Dr. Y Ambica**  
 Address of Applicant :Associate Professor, Computer Science and Engineering (AI&ML), CMR College of Engineering & Technology, Kandlakoya, Medchal, Hyderabad, Telangana, India. 501401 Hyderabad -----

**3)Dr. T. Bhaskar**  
 Address of Applicant :Assistant Professor, Computer Science and Engineering (AI&ML), CMR College of Engineering & Technology, Kandlakoya, Medchal, Hyderabad, Telangana, India. 501401 Hyderabad -----

**4)Dr. J. Sasi Bhanu**  
 Address of Applicant :Professor, Computer Science and Engineering (AI&ML), CMR College of Engineering & Technology, Kandlakoya, Medchal, Hyderabad, Telangana, India. 501401 Hyderabad -----

**5)Dr. Ravi Kiran Pyla**  
 Address of Applicant :Associate Professor, Electronics & Communication Engineering, CMR College of Engineering & Technology, Kandlakoya, Medchal, Hyderabad, Telangana, India. 501401 Hyderabad -----

(57) Abstract :  
 TIME SERIES FORECASTING MODEL LEVERAGING HYBRID DEEP LEARNING ARCHITECTURES AND STATISTICAL TECHNIQUES FOR ENHANCED PREDICTIVE ACCURACY ABSTRACT The time series forecasting system 100 provides an advanced solution for accurate and reliable forecasting of time series data. It includes a data acquisition module 110 that collects and preprocesses data from multiple sources. The hybrid deep learning module 112 utilizes a combination of deep learning architectures, such as recurrent neural networks (RNNs), long short-term memory (LSTM) networks, and convolutional neural networks (CNNs), to extract features and recognize patterns. Complementing this, the statistical analysis module 114 applies methods like autoregressive integrated moving average (ARIMA), seasonal decomposition of time series (STL), and Bayesian techniques for enhanced trend analysis. The model integration module 116 combines outputs from both modules to develop a unified forecasting model. The prediction module 118 uses this model to generate accurate forecasts, while the performance evaluation module 120 assesses forecast accuracy and provides feedback for iterative refinement. FIG. 1

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