PLAYER PERFORMANCE PREDICTION

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ABSTRACT

Player performance analysis and prediction is an important area in sports analytics. It uses historical data such as runs, goals, assists, fitness levels, and match statistics. Machine learning models like Linear Regression, Decision Trees, and Random Forest are used to predict future performance. The process includes data collection, preprocessing, feature engineering, model training, and evaluation. These predictions help coaches and teams make informed decisions. Advanced techniques include deep learning, neural networks, and real-time analytics. Player performance analysis and prediction is an important area in sports analytics. It uses historical data such as runs, goals, assists, fitness levels, and match statistics. Machine learning models like Linear Regression, Decision Trees, and Random Forest are used to predict future performance. The process includes data collection, preprocessing, feature engineering, model training, and evaluation. These predictions help coaches and teams make informed decisions. Advanced techniques include deep learning, neural networks, and real-time analytics. Player performance analysis and prediction is an important area in sports analytics. It uses historical data such as runs, goals, assists, fitness levels, and match statistics. Machine learning models like Linear Regression, Decision Trees, and Random Forest are used to predict future performance. The process includes data collection, preprocessing, feature engineering, model training, and evaluation. These predictions help coaches and teams make informed decisions. Advanced techniques include deep learning, neural networks, and real-time analytics. Player performance analysis and prediction is an important area in sports analytics. It uses historical data such as runs, goals, assists, fitness levels, and match statistics. Machine learning models like Linear Regression, Decision Trees, and Random Forest are used to predict future performance. The process includes data collection, preprocessing, feature engineering, model training, and evaluation. These predictions help coaches and teams make informed decisions. Advanced techniques include deep learning, neural networks, and real-time analytics. Player performance analysis and prediction is an important area in sports analytics. It uses historical data such as runs, goals, assists, fitness levels, and match statistics. Machine learning models like Linear Regression, Decision Trees, and Random Forest are used to predict future performance. The process includes data collection, preprocessing, feature engineering, model training, and evaluation. These predictions help coaches and teams make informed decisions. Advanced techniques include deep learning, neural networks, and real-time analytics. Player

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I INTRODUCTION

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II LITERATURE SURVEY

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III SYSTEM ANALYSIS

The Player Performance Prediction system uses Artificial Intelligence and Machine Learning techniques to analyze historical player data such as past performance, fitness levels, match conditions, and opposition strength. The system processes structured datasets and identifies patterns that influence a player’s future performance. By applying predictive algorithms, it helps coaches, analysts, and teams make data-driven decisions regarding team selection, strategy planning, and player training. The system ensures improved accuracy, reduces human bias, and enhances overall sports analytics efficiency.

Existing system

The existing system relies on manual verification or basic digital forensic tools. Experts analyze videos and images visually or use simple software tools to identify inconsistencies. However, with the advancement of deepfake technology, these methods are becoming less effective and often fail to detect highly realistic fake content.

DisAdavantages of Existing system

- Difficult to detect advanced deepfakes
- Requires expert knowledge
- Time-consuming verification process
- Not scalable for large data
- High chances of false results

Proposed system

The proposed system uses AI-based deep learning models such as CNNs, RNNs, and transformer-based architectures to automatically detect deepfakes. It extracts features like facial landmarks, blinking patterns, lip-sync mismatches, and pixel-level inconsistencies. The system is trained on large datasets of real and fake media to improve detection accuracy. It can be deployed in social media platforms, security systems, and verification tools to automatically flag suspicious content.

Advantages of Proposed System

- High detection accuracy
- Automated and fast processing
- Scalable for large datasets
- Detects subtle manipulations
- Reduces misinformation spread

IV METHODOLOGY

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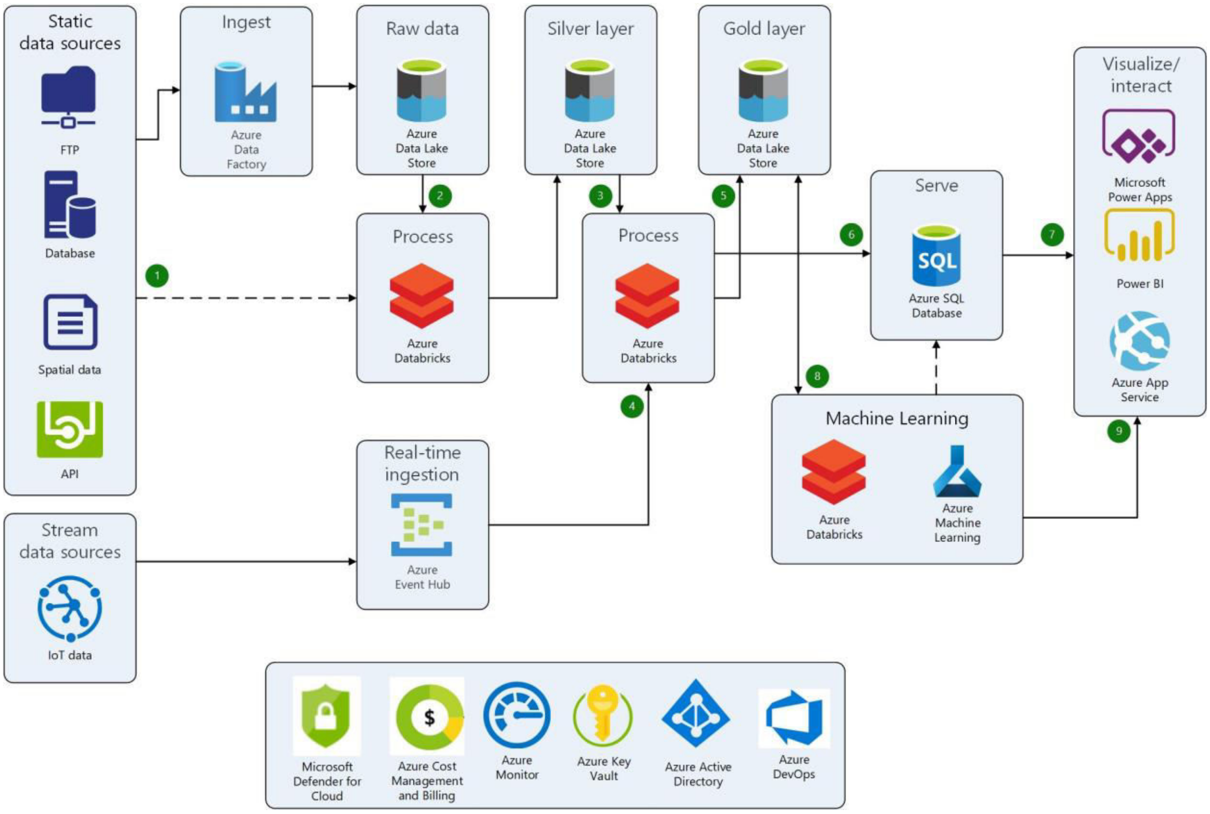
System Architecture



he AI Deepfake Detection system architecture is designed to identify fake media using deep learning techniques. It begins with the **input layer**, where images, videos, or audio files are collected. The data then enters the **preprocessing stage**, which includes frame extraction (for videos), noise reduction, and normalization. Next, the **feature extraction layer** analyzes facial landmarks, textures, and temporal inconsistencies using models like Convolutional Neural Networks (CNNs). In some cases, Recurrent Neural Networks (RNNs) are used to capture sequence-based patterns such as lip-sync mismatches. The extracted features are passed to the **classification layer**, where the model determines whether the content is real or fake. Finally, the **output layer** displays the result, often with a confidence score. This architecture ensures high accuracy, automation, and scalability in detecting manipulated med

V RESULTS &OUTPUT

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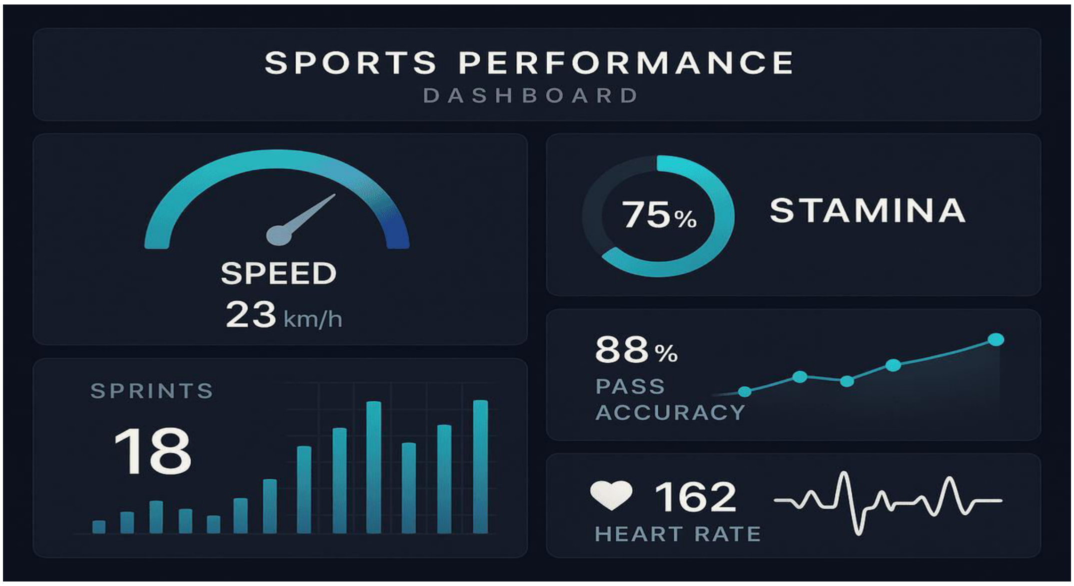

Model	Accuracy	Precision	Recall	F1	ROC-AUC	PR-AUC
LogReg	0.94	0.92	0.97	0.95	0.99	0.99
SVM	0.96	0.94	0.97	0.96	0.99	0.99
KNN	0.93	0.94	0.93	0.93	0.98	0.98
DecisionTree	0.81	0.82	0.79	0.80	0.81	0.75
RandomForest	0.95	0.93	0.97	0.95	0.99	0.99
GradientBoosting	0.93	0.94	0.93	0.93	0.99	0.99
NaiveBayes	0.95	0.94	0.96	0.95	0.99	0.99
XGBoost	0.93	0.91	0.94	0.93	0.98	0.98
LightGBM	0.94	0.91	0.97	0.94	0.99	0.99
CatBoost	0.94	0.92	0.97	0.95	0.99	0.99

VI CONCLUSION

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