

# News Streaming using LLM's to Curate the Best Business Article for Investor

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**Abstract** - The modern financial landscape is characterized by an overwhelming volume of unstructured news data, making it difficult for investors to extract relevant insights. This paper presents an AI-driven system that automates the collection, filtering, and summarization of financial news using Large Language Models (LLMs). The system integrates web scraping techniques, natural language processing, and cloud-based serverless architecture to process large volumes of data efficiently. News articles are collected from online sources and analyzed using GPT-based models to identify investor-relevant information. Relevant articles are then summarized into concise and professional insights. The use of AWS Lambda enables scalable and parallel processing, while Amazon S3 ensures secure data storage. The proposed system significantly reduces manual effort and improves decision-making speed. However, challenges such as model accuracy and dependency on external APIs remain.

**Key Words:** Large Language Models, Financial NLP, Web Scraping, AWS Lambda, News Streaming, Investment Analysis

## 1. INTRODUCTION

This document presents an automated system designed to assist investors in analyzing financial news efficiently. In today's digital world, thousands of news articles are published daily, making it difficult to identify relevant and actionable information. Traditional approaches rely on manual analysis or keyword-based filtering, which lack scalability and contextual understanding.

The proposed system leverages Large Language Models (LLMs) to process financial news and identify relevant information for investors. By integrating web scraping, cloud computing, and AI-based summarization, the system provides a scalable solution for real-time news analysis.

### 1.1 Motivation

In today's digital financial environment, investors face significant challenges in tracking and analyzing relevant news due to the massive volume of information generated daily across multiple platforms. Manually filtering and interpreting this data is time-consuming, inefficient, and often leads to missing critical insights that can impact investment decisions. Traditional keyword-based approaches lack contextual

Understanding and fail to identify truly meaningful information. Therefore, there is a strong need for an automated and intelligent system that can efficiently filter, analyze, and summarize financial news, enabling faster and more informed decision-making for investors.

## 1.2 Problem Statement and Objectives

### Problem Statement:

The rapid growth of online financial news makes it difficult for investors to identify relevant and impactful information. Manual analysis is time-consuming, unscalable, and often leads to missing critical insights. Traditional keyword-based approaches fail to capture contextual meaning, making them ineffective for accurate decision-making. Therefore, there is a need for an automated system that can efficiently filter and summarize investor-relevant news.

### Objectives:

- To automate the collection of financial news from online sources
- To classify news articles based on investor relevance using Large Language Models
- To generate concise and meaningful summaries for better decision-making
- To implement a scalable system capable of handling large volumes of data efficiently

## 2. Literature Review

Recent advancements in artificial intelligence have significantly improved financial news analysis. Various studies have explored the use of machine learning and deep learning models for sentiment analysis and prediction. Papatotiriou et al. (2024) demonstrated the effectiveness of GPT models in generating stock ratings. Jiang & Zeng (2025) utilized FinBERT for financial sentiment analysis and improved prediction accuracy. Ardekani et al. (2024) introduced FinSentGPT for multilingual sentiment analysis. Additionally, serverless architectures have been used to improve scalability and cost efficiency in real-time financial systems.

These studies highlight the transition from traditional methods to AI-driven approaches, emphasizing the importance of contextual understanding and scalability.

In addition to the previously discussed studies, several researchers have explored different approaches for financial text analysis and news-based prediction systems. Traditional machine learning models such as Support Vector Machines (SVM), Random Forest, and Naïve Bayes have been widely used for sentiment classification of financial news. However, these models rely heavily on manual feature engineering and often fail to capture contextual meaning in complex financial language.

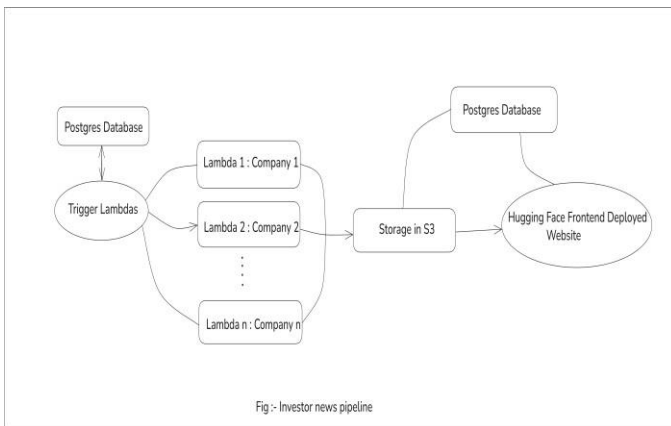


Fig - Investor news pipeline

**Fig 1 : System Architecture**

Deep learning techniques, including Recurrent Neural Networks (RNN) and Long Short-Term Memory (LSTM) networks, improved performance by capturing sequential dependencies in textual data. These models have been successfully applied to predict stock market trends based on historical news and social media sentiment. However, they still face limitations in understanding long-range context and domain-specific nuances.

With the introduction of transformer-based architectures, such as BERT and GPT, there has been a significant improvement in natural language understanding. Models like FinBERT are specifically fine-tuned for financial text and provide better sentiment classification compared to general-purpose models. On the other hand, Large Language Models (LLMs) such as GPT-4 offer advanced capabilities like contextual understanding, text generation, and summarization, making them highly suitable for financial news analysis.

From a system architecture perspective, cloud computing and serverless technologies have played a crucial role in enabling real-time data processing. AWS Lambda allows parallel execution of tasks, making it possible to process news for multiple companies simultaneously with reduced cost and latency. Similarly, cloud storage solutions such as Amazon S3 provide scalable and secure data storage.

Overall, the literature indicates a clear shift toward AI-driven, scalable, and automated systems for financial news analysis. However, there is still a need for improved accuracy, better

Evaluation metrics, and more robust real-world implementations.

### 3. CONCLUSIONS

This paper presented an AI-driven system for financial news streaming and analysis using Large Language Models. The system successfully automates the collection, classification, and summarization of news articles relevant to investors. By leveraging cloud-based serverless architecture, the system ensures scalability and efficiency.

The proposed approach reduces manual effort and enhances decision-making by providing concise and relevant insights. Future work may focus on improving model accuracy, handling multi-source data, and enhancing system reliability.

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