

# Soul-Surveyor: Mental Health Monitoring System.

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**Abstract:** *Mental health is a foundational aspect of human well-being and has garnered increasing attention in the contemporary healthcare discourse. With the rise of digital platforms, individuals frequently share personal thoughts, emotions, and life experiences online, generating an extensive stream of text-based data. This presents a unique opportunity to extract meaningful insights into the psychological state of populations using data analytics.*

*The project titled "Sentiment Analysis of Mental Health" frameworks and natural language processing (NLP) techniques to analyze mental health-related digital content. By leveraging sentiment analysis models, the system classifies online expressions—such as those found in social media posts, forums, and chat logs—into sentiment categories: positive, negative, or neutral. Beyond basic sentiment classification, the project incorporates emotion detection algorithms to identify nuanced emotional states, including sadness, happiness, stress, and anxiety.*

*To operationalize the results, BI dashboards are employed to visualize sentiment trends and emotional patterns in real-time. These tools support mental health professionals, researchers, and policymakers by offering a comprehensive view of emerging concerns, behavioral shifts, and potential risk indicators. Ultimately, this integration of NLP and BI serves to demystify online discourse around mental health, reduce stigma through informed analysis, and support proactive, data-informed interventions.*

**Keywords** – *Business intelligence, Sentimental Analysis, Natural Language Processing, Mental Health Monitoring, Data Analytics.*

## I. INTRODUCTION

Mental health is an integral component of overall well-being, and its significance has gained increasing recognition in recent years. In the digital age, people share their thoughts, feelings, and experiences online, providing a wealth of data that can be harnessed to understand and support mental health. The "Sentiment Analysis of Mental Health Using Business Intelligence" project seeks to leverage advanced analytics and business intelligence (BI) tools to gain valuable insights into the emotional well-being of individuals through the analysis of text-based data related to mental health. Mental health challenges affect millions of people globally, and the stigma associated with discussing these issues often leads individuals to express their emotions, concerns, and experiences anonymously or through digital platforms. This provides a unique opportunity to use sentiment analysis, a subset of natural language processing (NLP), to evaluate the sentiments, emotions, and trends surrounding mental health topics in online conversations. Sentiment analysis is Utilize NLP techniques to perform sentiment analysis on text data from various sources, such as social media posts, forums, chat logs, and mental health support platforms. This analysis will classify the sentiments expressed as positive, negative, or neutral, providing insights into the emotional state of individuals. Emotion Detection is extend sentiment analysis to identify specific emotions expressed in the text, such as sadness, happiness, anxiety, or stress. Understanding the underlying emotions can offer a more nuanced view of mental health-related discussions. Business Intelligence Integration is Employ BI tools and dashboards to visualize sentiment analysis results. These interactive dashboards will enable mental health professionals, policymakers, and researchers to explore data trends, patterns, and correlations, facilitating evidence-based decision-making. The "Sentiment Analysis of Mental Health Using Business Intelligence" project recognizes the potential of data analytics and BI to improve mental health awareness, support, and services. By analyzing the sentiments and emotions expressed in digital conversations, this project strives to create a more compassionate and informed approach to addressing mental health issues in society.

## II. REVIEW OF LITERATURE SURVEY

The following chapter is a literature survey of the previous research papers and research which gives the detailed information about the previous system along with its advantages and disadvantages.

Kamil Zeberga, Muhammad Attique, Babar Shah, Farman Ali, Yalew Zelalem Jembre, Tae-Sun Chung [1], The text discusses the growing impact of mental health issues, particularly among young people, and the challenges in recognizing and treating depression. It highlights the increasing integration of smart devices into healthcare and the potential of social media for monitoring mental health. To address the unstructured nature of social media data, a framework is proposed, utilizing deep learning techniques such as BERT and Bi-LSTM for automatic detection of mental health conditions in real-time social media data. The goal is to support healthcare systems in identifying individuals with depression and anxiety and provide them with the necessary social support. The study acknowledges the increasing complexity of health-related data and the burden it poses for researchers. Overall, it presents a smart and environmentally conscious approach to addressing mental health-related problems through social media analysis.

Rohan Dixit, Geetika Chawla, Ishaan Bajaj [2], Internal health is a crucial aspect of human life, and novel Analysis using Natural Language Processing has been proposed to predict mood, exertion, internal status, depression, anxiety, and stress. This system uses natural language processing, sentiment analysis, smart phones, social media, and Lambda Architecture to understand and predict mental health issues. Depression is a significant issue, with about 20 Indians experiencing profound internal complaints at a time. The Singular Value Corruption approach supports the issue, showing that individuals may tweet about mental depression when they are in a disconsolate phase. The system uses Random Forest and Choice Tree computations to analyze data, based on Lambda architecture. The system gathers data from various sources and uses real-time data to analyze the person's sentiment, providing detailed reports on internal health. The speed subcaste is favored over delicacy, potentially helping to alleviate the mood of individuals experiencing internal stress.

Ferdous Benrouba, Rachid Boudour [3], Social media platforms like Facebook and Twitter have become a major problem for today's generation, allowing users to share thoughts, ideas, personal information, images, and videos at an unprecedented rate. However, studies have identified negative consequences such as increased anxiety, stress, depression, loneliness, and eating disorders. To filter emotionally harmful content, researchers propose a method that categorizes content into five basic emotional categories and displays a warning message if it is. They used the Twitter API to analyze user posts, classify content into five categories, define a perfect emotion array, and calculate the Euclidean distance between tweet content and the perfect emotion array. However, the validity of this approach is threatened by inherent differences between tools, inconsistencies in the method, and the nature of the tool type.

Hyona Yu, Ji Hyun Bae, Jiyeon Choi, Hyungseok Kim [4] examine the evolving use of sentiment analysis technologies, particularly within AI-driven home devices like smart mirrors and speakers. While sentiment analysis is already utilized in domains such as online reviews and targeted content delivery, its integration into smart home systems remains underdeveloped. Their study focuses on the LUX smart mirror system, exploring how emotional recognition can be embedded into household AI for user well-being. The authors detail preprocessing methodologies, sentiment classification models, and efforts within the Korean language context to standardize emotional vocabulary using collective intelligence frameworks. This research suggests untapped potential for embedding emotion-aware technologies in consumer devices.

Shuo Yang [5] investigates the public's psychological response during the COVID-19 outbreak in China using sentiment analysis of posts on Sina Weibo. His findings reveal how regional sentiment trends shift during public health crises and argue that policy adaptations should consider these emotional fluctuations. The research employs linguistic and statistical techniques to analyze public sentiment, highlighting how even amidst censorship, favorable attitudes persist. The study underscores the role of supervised learning models in capturing large-scale public opinion trends and demonstrates how such analyses can inform responsive public health strategies.

Imamah, Fika Hastarita Rachman [6] focuses on public sentiment during the pandemic using Twitter data, specifically targeting the intersection of COVID-19 and mental health. Using a combination of TF-IDF, cosine similarity, Support Vector Machines, Naive Bayes, and Random Forest classifiers, the study classifies tweets into positive or negative sentiment categories. The research highlights the advantages of TF-IDF over traditional Bag of Words models in identifying sentiment-rich keywords. It also points out the complexity of preprocessing required due to the noisy, unstructured nature of social media datasets, especially in multilingual contexts like Malayalam.

Dhiaa A. Musleh, Taef A. Alkhalaf, Reem A. Almakki, Shahad E. Alnajim, Shaden K. Almarshad, Rana S. Alhasaniah, Sumayh S. Aljameel and Abdullah A. Almuqhim [7] explore sentiment analysis in Arabic social media to detect depression, addressing the challenge of underdiagnosis in Arabic-speaking populations. The study develops a machine learning model trained on tweets from individuals who either self-identified as depressed or completed clinical depression scales. Their approach uses natural language processing to handle the linguistic diversity and morphological complexity of the Arabic language. This work highlights both the technical hurdles in Arabic NLP and the potential of social media as a scalable screening tool for mental health monitoring.

Bharati Sanjay Ainapure, Reshma Nitin Pise, Prathiba Reddy, Bhargav Appasani, Avireni Srinivasulu, Mohammad S. Khan Nicu Bizon (8) dissect Indian public sentiment related to COVID-19 and vaccination juggernauts via Twitter. With the swell in social media use during the epidemic, their exploration employs deep learning models to classify emotional responses similar as happiness, wrathfulness, and impartiality. The sentiment extractor autonomously determines tweet opposition, abetting policymakers in understanding public stations. Their findings give practicable perceptivity for government communication strategies and emphasize the mileage of sentiment analysis for guiding public health messaging in extremity scripts.

Charlyn Villavicencio, Julio Jerison Macrohon, X. Alphonse Inbaraj, Jyh- Horng Jeng and Jer- Guang Hsieh (9), COVID-19 has greatly affected several areas in our lives, including the terrain, profit, internal health, and public transportation. It has also caused a significant decline in productivity and employment, and has touched off anxiety, depression, loneliness, violence, and substance abuse. COVID-19 has reacted in a significant decline in public transportation demand and profit, a rise in demand for online communication, and a fear of mass destruction and casualties in India. Fortunately, there are now vaccine available to give immunity against the detriment of the contagion. A study was conducted to anatomize the sentiment of Filipinos towards COVID-19 vaccines through the social networking point Twitter and classify them into positive, neutral, and negative contrariness. The results of this study can help the Philippine government to make wise opinions regarding the vaccination program. Different fabrics for sentiment analysis using Twitter data have been proposed, including the attention-predicated bidirectional CNN-RNN deep model (AGBDM) and the bidirectional emotional intermittent unit (BiERU) for conversational sentiment analysis. Sentiment analysis can be used to directly descry business accidents by exercising social media posts and NLP ways. In the medical field, sentiment analysis is also employed to recommend particular diabetes and blood pressure healthcare treatment using wearable sensors and social networking data. RapidMiner (RM) is a data wisdom software conforming of data preprocessing ways, machine knowledge algorithms, and model structure motorists. Nave Bayes is a generally used classifier that performs directly in determining the true opposition of a given judgment, indeed in unstable datasets.

Ankita Gandhi, Kinjal Advharyu, Soujanya Poria, Erik Cambria, Amir Hussain( 10), Since the prolusion of trap 2.0, people have come plaint to express and partake their ideas on the trap. passion analysis and emotion recognition are two mores of affective analytics, and are considerably exercised by business and indulgence industriousness. Affective computing is an arising field of disquisition aiming at allowing exceptional systems to perceive, infer, and comprehend mortal passions. It spans computer wisdom, psychology, gregarious wisdom, and cognitive wisdom, and is exercised in product monitoring, promoting better customer connections, developing better marketing strategies, and perfecting and constituting services. Emotion recognition and passion analysis is a growing disquisition trend, but it 's delicate to automatically assay a substantial amount of data and produce a summary of aspects. MSA extracts people's studies, heartstrings, and passions from obediences of their behaviours. Emotion recognition is a vital element of mortal- suchlike artificial intelligence(AI) and can be exercised in multitudinous fields analogous as passion analysis, review- predicated systems, healthcare, and others. It's also gaining traction in NLP due to its capability to mine opinions from a cornucopia of privately accessible conversational data. Machine knowledge is the capability of a software or machine to enhance the interpretation of particular tasks by being exposed to data and exploits. Deep knowledge algorithms have been exercised in a number of Big Data disciplines to meliorate type and modelling issues. Deep knowledge is gaining fashion capability as it speeds up the automization process for passion analysis of substantial amounts of data. It can be exercised for point election, point birth, learning parameters, recycling point vectors and generating prognostications.

Pranav Rane, Kashyap Bhansali, Prof. Sindhu Nair(11), Humanity is presently facing great challenges due to aggressive work surroundings, high stress particular life, and added competition and work pressure. Before using the app, the user needs to record data about themselves, including their name, job type, nuptial status, names of children, favorite television shows and favorite filmland. We used Twitter data for training our classifier. The training dataset was divided in two classes Positive and Negative, firstly. We use the Bag of Words model for text- predicated type to further classify the negative feeling into outrage,

Depressed- Professional, Depressed-particular and Anxiety. Ngrams are principally ordered set of words with length n. They perform well for locating syntactic patterns, especially negations, which are an important element for the analysis of emotion in text. Negation handling was among the factors that contributed significantly to the delicacy of the classifier that we made. A simple algorithm for handling negations using state variables was used to break this problem. We trained our classifier using variable size of training data and set up some interesting results. The delicacy improves as the size of training set increases, and there 's a slight improvement when using bigrams and unigrams. The operation needs to be intelligent so that it understands the hours in which the user is most depressed. It 'll proliferation by 1 whenever the user requests media in the hour, and hence the value for a certain hour will be advanced than the value of other hours. A threshold variable will be assigned to the user, and a function will periodically change the threshold variable to a advanced value.

Sonali Sharma, Manoj Diwakar, Kapil Joshi [12], social media is a universal place where everyday millions of posts and tweets are participated. numerous associations use sentiment analysis to get an sapience and dissect the mood of guests regarding their product and service. Text analytics technology initiated with a word- commemorative grounded system, but this system failed to induce the overall sentiment rightly in the presence of two differing words in a single statement. The reality grounded sentiment analysis system handed important scrap information. Several algorithms are used for sentiment analysis, including SVM, Naive Bayes, Linear Retrogression, Logistic retrogression, KNN, and K- means Clustering. Deep literacy approaches for sentiment analysis include CNN, RNN, unbelief networks, Simple Feed- Forward and bi-directional RNN. converted grounded approaches are also used to fine tune the pretrained language model and perform sentiment analysis. Sentiment analysis is imperative for associations as it provides them an occasion to ameliorate, grow and reach millions of guests. It helps them to know about their brand fashion ability and helps them to ameliorate their client support. To attack the diversity of information during online streaming on a social networking platform, CNN with attention medium has been tried, and language structure has also evolved over the times.

Sudha Tushara Sadasivuni, Yanqing Zhang [13], Twitter has been used by researchers to examine mental disease, and they have found that people who tweet with terms related to depression are more inclined to post gloomy phrases. They used the R  $\text{tm}$  package to remove http links, numbers, special characters, symbols, white spaces, and stop words from tweets. Each keyword's top 24 high-frequency terms were collected, and their frequencies were aggregated. The Singular Value Decomposition method was used to determine the factors influencing the process, and the frequency lists were utilized to determine correlation coefficients for keywords. The technique retrieves singular values from the matrix by decomposing it into diagonal elements. People who tweet with one depressed term also use the other three depressing keywords automatically, according to our research. The frequency of words used illustrated the word usage pattern with keywords and showed that a person in one stage of depression may quickly enter another.

Chiara Zucco, Barbara Calabrese, Mario Cannataro [14], Computing topics like sentiment analysis and emotional computing examine the beliefs, feelings, and attitudes conveyed in literature or the media. For illnesses like stress and mood disorders, emotions can not be symptoms of and risk factors for development. By offering unbiased evaluation tools, sentiment and emotional sensing technology can enhance the job of healthcare professionals and save healthcare expenses. Common tasks in sentiment analysis include emotion recognition and polarity identification. The five components that make up an emotion are entity, entity's feature, emotion kind, feeler, and time. A suggested integrated multimodal system for monitoring depression includes wearable devices for heart rate and sleep data as well as mobile technology for data entry. Depression monitoring is being created using the lambda architecture, a software architecture used for multimodal data extraction from many sources. In addition to real-time and offline calculations, the system also does feature extraction and classification using text, picture, and audio data. Three approaches of fusing audio and visual features will be tested, and their effectiveness will be assessed.

Ramin Safa, Peyman Bayat, Leila Moghtader [15], A multimodal system for monitoring depression, utilizing wearable devices, mobile technology, and lambda architecture, utilizes sentiment analysis and emotional computing to improve healthcare professionals' work and reduce costs. Regular expressions and machine learning methods are recommended for mental disorder prediction, but predefined datasets provide limited information. Deep learning approaches have been explored for depression detection and suicide-related stressors. Textual content and linguistic patterns are used to understand the impact of features on mental disorder prediction, with Linguistic Inquiry and Word Count (LIWC) analysis being a popular tool. The DSM-5 suggests depressive moods are characterized by sadness and disgust. To filter out tweets, the NRC Emotion Lexicon was modified to include "depression" in the "sadness" category. Twitter API tweets were collected. Particular worth decay (SVD) is a measurable strategy for separating and addressing word importance in huge text corpora. In this review, a shortened SVD was utilized to recognize tweet classifications and look at LIWC dissemination in bio-text and created BoVWs.

Maryam Mohammed Aldarwish, Hafiz Farooq Ahmed [16], Online entertainment can be utilized to foresee emotional wellness levels and give ideal clinical counsel and treatment. By gathering client created content from person to person communication locales (SNS), we can acquire a complete picture of client conduct, possibly helping with sadness forecast. A classifier is prepared utilizing Backing Vector Machine (SVM) text characterization calculations, zeroing in on despondency side effects. The instrument is restricted to Facebook clients and utilizations four administrators: Tokenize, Channel Stop-words, Change Cases, and Stem. The approval administrator applies to the preparation dataset, and the apply model administrator associates the test and preparing datasets. The review tried a Nave Bayes classifier model for foreseeing sorrow utilizing 30 people, with 15 relegated as discouraged and 15 not. The model accomplished the best accuracy yet the least precision and review contrasted with related works, conceivably because of the presence of discouraged people in Saudi Arabia.

Jamil Hussain, Maqbool Ali , Hafiz Syed Muhammad Bilal , Muhammad Afzal , Hafiz Farooq Ahmad , Oresti Banos, and Sungyoung Lee [17], Dysfunctional behavior is the significant giver in handicap around the world, and influences person's mind-set, mental and language styles, capacity to work, and routine exercises. Wretchedness is the most well-known psychological sickness, and just about 1 million lives are lost because of self-destruction consistently. All around the world, clinical assets are used to conquer the outcomes of psychological maladjustment. In any case, there is lacking worldwide help and administration for uncovering the psychological sickness, and no dependable methods have been formed that ought to be depended upon. SNS are utilized as a device to find and foresee ways of behaving and messes in people, since it recodes the normal exercises and occurring in a naturalistic manner, and is less defenseless against memory predisposition or experimenter request impacts. Our framework design utilizes chart Programming interface, a Facebook Application drove Socially Intervened Patient Entrance (SMPP), outsider APIs, for example, Apply Sorcery Sauce (AMS)API, Alchemy API and own Opinion classifiers for Character, Strict Perspectives, Sexuality, Calling, Gloom reference, Medications references, Inner self organization, Commitment and Help looking for data's extraction. It utilizes numerous Javascript information representation libraries to picture scholarly information from grouped information and uncovers many secret examples with respect to the client way of life. An electronic instrument is created to evaluate dependency side effects as per DSM-V standards in light of Facebook profile information. The aftereffects of the apparatus mirror that the subject client's posting have numerous burdensome references, and that the subject is befuddled about his reasoning and depleted.

### III.

#### ANALYSIS

Analysis table summarizes the research papers on the Face Recognition. Below is a detailed description of various algorithms used in research papers.

Table 1: Analysis Table

Title	Summary	Advantages	TechStack
A Novel Text Mining Approach for Mental Health Prediction Using Bi-LSTM and BERT Model [1]	The text highlights the growing prevalence of mental health issues, especially among young people, and proposes a deep learning framework for real-time detection of such conditions.	Innovative Approach, Accurate Predictions, Textual Data Analysis, Comprehensive Study, Relevance to Computational Intelligence and Neuroscience	(BERT), deep learning, Bi-LSTM

Mental Health Monitoring using Sentiment Analysis [2]	The system uses Natural Language Processing, sentiment analysis, and Lambda Architecture to predict mental health issues like depression, anxiety, and stress using realtime data and a speed subcaste.	Early Detection, Scalable and Efficient method, Practical Implications, Non-Intrusive Method	Natural Language Processing, Lambda Architecture
Emotional Sentiment Analysis of Social Media content for Mental Health Safety [3]	Researchers propose a method to filter emotionally harmful content on social media using Twitter API for analysis, categorization, and warnings, but face challenges.	The article leverages artificial intelligence and natural language processing techniques to analyze social media content.	Natural Language Processing, CNN, RNN
LUX: Smart Mirror with Sentiment Analysis for Mental Comfort [4]	The study suggests using LUX for sentiment analysis in smart doorbells and smart mirrors, highlighting its growing popularity in AI gadgets and dialog systems.	The LUX smart mirror utilizes sentiment analysis techniques to analyze facial expressions and emotions. It can detect and interpret emotions such as happiness, sadness, and stress, providing real-time feedback and insights for mental well-being.	Deep learning, raspberry Pi, Bidirectional-LSTM, Bi-GRU model
Sentiment Analysis of COVID-19 on Weibo text using optimized Bi-	China's government is adjusting strategies to mitigate negative sentiment on Sina-Weibo amid the	It considers the observing and investigation of public opinion, and in this way gives suggestions and	Latent Dirichlet Allocation LDA model, Bi-LSTM, TS-LDA (Topic-Specific LDA), SS-

LSTM model [5]	COVID-19 crisis, despite blockages, using statistical analysis and supervised learning techniques.	references to public administration and strategy oversight.	LDA (Sentence Segment LDA)
Twitter Sentiment Analysis of Covid-19 Using Term Weighting TF-IDF And Logistic Regression [6]	The study utilizes Twitter data to analyze global public perceptions of Covid-19 and its impact on mental health using various machine learning techniques.	Insight into Public Perception, Data-Driven Decision Making system, Effectiveness of Techniques.	TF-IDF, logistic regression
Twitter Arabic Sentiment Analysis to Detect Depression Using Machine Learning [7]	Research suggests using natural language processing and machine learning to identify depression among Arabic Twitter users, despite challenges in translation due to the complexity of Arabic language.	It is scalable, it has Cultural Sensitivity, he paper contributes to the growing field of mental health informatics by exploring new methods and datasets, potentially advancing our understanding of mental health detection.	Support Vector Machine (SVM), Random Forest, Logistic Regression, K nearest Neighbours
Sentiment Analysis of COVID-19 Tweets Using Deep Learning and Lexicon-Based Approaches [8]	The COVID19 pandemic has prompted a surge in social media usage, attracting academics and researchers, who are now using sentiment analysis to aid government officials in making informed decisions.	The combination of deep learning and lexicon-based approaches suggests a comprehensive analysis that leverages both automated machine learning techniques and established sentiment lexicons	Bi-LSTM and GRU techniques, tools VADER and NRCLex

<p>Twitter Sentiment Analysis towards COVID-19 Vaccines in the Philippines Using Naïve Bayes [9]</p>	<p>A study on Twitter sentiment towards vaccines can inform government decisions, detect business accidents, and recommend healthcare treatments using Rapid Miner and Nave Bayes tools.</p>	<p>The findings can aid in the development of effective communication strategies for promoting vaccination by addressing concerns and misconceptions highlighted in the sentiment analysis.</p>	<p>NLP Techniques, Naïve Bayes Classification</p>
<p>Multimodal sentiment analysis: A systematic review of history, datasets, multimodal fusion methods, applications, challenges and future directions [10]</p>	<p>Trap2.0 sparked discussions on affective analytics, emotion recognition, and machine learning, with deep literacy algorithms gaining popularity for emotion recognition and passion dissection in large data sets.</p>	<p>Multimodal Fusion Methods helps researchers choose the most appropriate methods for their specific applications.</p>	<p>CSFC (Convolutional Fuzzy Sentiment Classifier), HALCB (Hierarchal Attention-Bi-LSTM (BidirectionalLongShort Term Memory), AHRM (Attention-based Heterogeneous Relational Model), TCM-LSTM (Temporal Convolutional Multimodal LSTM)</p>
<p>Sentiment Analysis to Improve Emotional Health of User [11]</p>	<p>A Twitter classifier trained to classify negative emotions improved with larger training sets, enhancing brand visibility and customer support in challenging work environments.</p>	<p>It is scalable, It has Improved User Experience, data-driven insights can inform the design of mental health interventions.</p>	<p>Naïve Bayes classifier, Part of Speech Tagging</p>

<p>A Critical Review on Sentiment Analysis Techniques [12]</p>	<p>Sentiment analysis on social media helps organizations understand customer sentiment and improve brand image. Various algorithms and deep literacy approaches are used, including CNN and RNN. Sentiment analysis helps associations reach millions of guests and improves brand support.</p>	<p>The article discusses evaluation metrics for sentiment analysis, enabling researchers to assess the performance of their models accurately.</p>	<p>Machine learning method, lexicon based method, Deep learning methods, Transformer methods.</p>
<p>Analyzing Tweets to Discover Twitter Users Mental Health Status by a Word-Frequency Method [13]</p>	<p>Researchers Found that people tweeting with depression-related terms are more likely to post gloomy phrases. The study used the R 'tm' package and Singular Value Decomposition method to analyze word usage patterns.</p>	<p>Real-Time Monitoring, Cost-Effective, It is scalable, It has Potential for Early Intervention</p>	<p>WordFrequency method, SVD method</p>
<p>Sentiment Analysis and Affective Computing for depression monitoring [14]</p>	<p>A multimodal framework for observing sadness, using wearable gadgets, portable innovation, and lambda engineering, uses opinion investigation and profound processing to further develop medical care experts' work and decrease costs.</p>	<p>It is scalable, Sentiment analysis and affective computing contribute to datadriven healthcare, enhancing the precision and personalization of mental health services.</p>	<p>Affective Computing technique.</p>

<p>Automatic detection of depression symptoms in twitter using multimodal analysis [15]</p>	<p>Multimodal system for monitoring depression uses wearable devices, mobile technology, and emotional computing to improve healthcare professionals' work and reduce costs.</p>	<p>The use of multimodal analysis indicates a comprehensive approach, likely incorporating text, image, and possibly other data types, providing a more holistic understanding of users' mental health.</p>	<p>Multimodal Framework, machine learning techniques, N-grams</p>
<p>Predicting Depression Levels Using Social Media Posts [16]</p>	<p>Online entertainment predicts emotional wellness using Backing Vector Machine text classification. Nave Bayes model for sadness prediction, tested with 30 people, achieved best accuracy but had least precision and review.</p>	<p>The proposed system gives idea about the natural behaviour of the depressed patient and his/her way of thinking. It classifies the patient in one out of four levels of depression (Minimal, mild, Moderate, Severe). The system achieved better precision than SVM and Naïve Bayes Classifier.</p>	<p>Support Vector Machine (SVM), and Naïve Bayes.</p>

#### IV. CONCLUSION

The culmination of this project exemplifies the transformative potential of harnessing social media and business intelligence to address mental health. In an age where digital platforms are central to our lives, they have proven to be powerful tools for promoting mental health awareness, enabling peer support networks, and disseminating critical information. By implementing business intelligence techniques, we've harnessed the immense data available on these platforms to gain deep insights into mental health trends, public sentiment, and user engagement. This data-driven approach not only helps us understand the evolving landscape of mental health challenges but also informs the design of more effective interventions and support mechanisms. It is now clear that, in a world where stigma surrounding mental health is diminishing, these technologies offer a scalable, cost-effective, and accessible means of fostering a global conversation on mental well-being. By harnessing the synergy of social media and business intelligence, we can drive meaningful change, reduce the burden of mental health issues, and ultimately contribute to a healthier and more informed society.

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