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Efficient multi-object detection and Visual Impairment by Artificial Intelligence

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Abstract

Freedom and autonomy means making your own choices, Refers to the ability to act the way you want without needing help. Blind people in everyday life they face many difficulties. They need help. To make users more independent, Connected to the mirror using artificial intelligence a prototype was developed to describe the images from the camera. Some functions face, Object and color recognition, all machine learning and image recognition. Place different objects in front of the device by the teachers to check whether they can be identified Practice tests were conducted. The results were satisfactory to prove the concept of the device. Visually impaired people in daily life due to visual impairment they face many difficulties. In day-to-day consumption, transactions alone are difficult. Similar shapes and by them different products of sizes cannot be identified. They need help from others in everyday life, especially in shopping. Also, in the payment process, it is difficult for the visually impaired to distinguish the denomination(s) of the banknotes. Also cheating and Such as supply of improper materials Many acquired problems occur. The app will enable users to identify canned foods and distinguish denominations of currency notes to complete cash transactions effectively and efficiently. With voice and resonance on smart phones the application can be installed.

Keywords: Marine Current Energy, MOORA method.

I. Introduction

Visual Impairment by Artificial Intelligence a Visual impairment A person's perspective Cannot be adjusted to "normal". Decreased visual acuity can lead to nearsightedness, where the eye does not see objects as clearly as it normally would. For example, AI can be trained to perform text summarization that is helpful for users with cognitive impairments; or image and for the blind facial recognition to assist; or real-time captioning, which helps the hearing impaired. Visual AI is the ability of computer vision to see images like a human. As digital media becomes more and more visual, the power of AI will enable us to understand and process images on a large scale. Assistive technology used by the blind Screen readers for the blind. A screen reader is between a computer and a blind person Acts as an interface is an assistive technology. Refreshable braille displays, Dictation, Accessible web design for visually impaired users, Special browsers. Blindness and Visual impairment Global public health problems. Although they do not directly because death, they are affected in people's quality of life Make a big impact and communities as they lead to lifelong disability. As with other intelligences, it is essential in human life and development. Visual-spatial intelligence time And find us in place, Create 3D models, it also allows us to express ourselves artistically. These skills can be developed from childhood in the classroom and at home. Limiting emojis, adding captions, and using the hashtag #caption are simple ways to make your social media more accessible. Here are a few more things you can do: List alternatives like your phone number or a “Contact Us” link on your social media sites. Blind and partially sighted users can navigate activities and like, Comment and share posts. You can text size and Adjust the contrast. Facebook is all important compatible with screen readers, keyboard shortcuts (access keys) using Can navigate. Life coordinator Madeleine Bloom's technology uses Facebook. Thanks to modern technology, writing documents for the visually impaired, like surfing the web and sending and receiving emails many things can be done. Screen reading software and Special speech and Braille devices Computers for the blind Cell phones and other electronic devices allow independent use. A major challenge facing students with visual impairments in the science education environment is their constant exposure to numerous visual materials such as textbooks, class notes, class charts, chalkboards, writing, models, pictures, and other graphic materials. Visual impairment is a serious handicap Faced by the visually impaired. One who can see the universe a person will feel an emotion that cannot be seen a person will never realize. A black spot that millions of people around the world face is a vision problem. We want to remove this black spot. Human intelligence is the research and development of software applications; it can be deliberately detected and acted upon. Most people's facial movements, through body and vocal tones Communicates verbally to express emotions. There are also a large number of senses. To capture all these emotions, big data are routine we use it as a storage medium. Too much data cannot be processed. Emotional Intelligence (EI) is Individuals own emotions It refers to the ability to identify. To distinguish, correctly label different emotions from others, People think and to guide behavior to use emotional intelligence, it is also about managing emotions. Written labels and Readable packets Increase the independence of life for people who are blind or visually impaired it can also improve social and economic freedom. Digital Sensing, Modern developments in digital cameras and mobile computers, along with other commercial products such as OCR By creating

camera products that incorporate machine learning innovations precisely supporting people. Deaf and mute people use traditional navigation aids White canes, maps etc over the years Use the support of a professional Mentor or volunteer. Now some use their sense of smell or hearing to help them navigate. As technological innovations are used in the development of everyday products, People even in useful tools are starting to use this advantage. These resources are for people with disabilities designed to help them in their daily lives. These methods then as assistive technologies were approved; there are voice controls helping the blind. Existing arrangement is for the blind using artificial systems Not only does it support it also enables voice commands, face detection of pictures you click. Decades of visual impairment are a global problem. By the World Health Organization According to a published report, "On Visual Impairment Global Data 2010", Worldwide in 2010 of the 285 million blind, 246 million are blind and 39 million blind. 65% of blind people and 82% of blind people are 50 years or older It is estimated that more than Main of visual impairment Causes were uncorrected refractive errors (43%) and cataracts (33%). Causes of blindness include cataracts (51%), Glaucoma (8%), age-related macular degeneration (5%), childhood blindness, corneal opacities (4%) and Undetermined causes (21%) included. Between 1990 and 2015, of the total world population With a 38% increase and a doubling of the population of adults under 50, In the relative percentage of people with visual impairment Significant progress has been made globally years and above. Increased public awareness, Affordable Eye Health Services and a decline in poverty levels are the main factors of positive development. However, the steadily increasing population, especially because of Aging population increases the number of blind people there has been a significant increase. By 2030, there will be 385 million blind people worldwide, 330 million of them suffer from low vision and an estimated 55 million people are legally blind.

II. Machine learning

Machine learning for predicting performance ratings Created to recognize patterns is a scientific method. Machine learning and supply chain management, to eliminate cost, Collaborates with essential formation to better predict operations and develop high-pitched analysis of the system. Big data, machine learning and supply chain operations In a multipath flow seem to complement each other, Data entry there is by humans provided, Generates large amounts of data, Thus accurate for predictive supply chain management Machine learning is implemented to define the estimates. Artificial intelligence, machine learning, Deep learning and the correlation between the analyzes is shown in Figure 1. Adapted from Figure 1 (Intel). Big data applications Acceptance means institutions can improve their predictive, distribution schedule; Evidence, implementation and reverse logistics management can also be analyzed. Business intelligence based on various data sources Aims to automate data to support decision making. Business Intelligence is defined as "enabling interactive access to data, Data manipulation and business managers and its main purpose Capacity for analysts is to provide to conduct relevant analyses". Business Intelligence Business Analytics, such as data warehousing and Business Process Management and User Interface contains various tools. The scope of BI is large-scale Converting information into data. Collection of large amounts of data and in the management decision-making process it has brought great change. For example, in the supply chain domain, Applications of machine learning often focus on data-methodology; few previous studies of data analytics in business performance have shown significant contribution. Analytics is hidden from the data Means extracting insights. Some researchers call healthy data culture or they suggest the need for an analytical culture. A recent research effort in many industrial data sets Enabled in forecasting sales forecasts using analytics. Applications of machine learning in scientific research, since the early 2000s to better understand forecasting issues Used to improve forecasting techniques. Used in machine learning Implementation of various algorithms Complex and ineffective in specifying precise prediction problems. When the data is large or very complex, making predictions Analysis of existing data applying the techniques is challenging. Machine learning approaches different types of Machine learning techniques, supervised learning, deep Learning and Reinforcement Learning, Machine learning approaches are very useful during this period. The future is digital and automation technology To read data formats running algorithms. To perform supply chain tasks run its own functions. Future supply chain systems will be powered by Machine learning techniques. For example, DHL and Amazon are fast and with efficient machine learning systems Giant auctioneers simplifying their systems. Machine learning for supply chain Future proofing of unsupervised operational systems, Better logistics solutions for resource and cost-efficiency and Russell discussed in the article that innovation provides. Future activities, Balance of supply and demand, in production, cost management and last mile distribution system of risk aversion Low-error to achieve predictability Complexity with large data inputs Machine learning supply chain supporting systems.

III. Deep Learning

A lot of AI Advanced format deep learning; It has grown hand in hand with the digital age. Like entertainment, finance, health and social networking it casts its shadow in various fields. With the explosion of data and progressive advancement in the hardware industry, AI's deep learning Consider the future. This chapter is about AI is brief Historical perspective and deep learning Also provides a brief description. Also, it is deep in social networks of learning algorithms around the app the light shines. deep learning, A class of machine learning, Represents representation-learning models, To learn representations or from raw data There are nonlinear modules designed to Extract high-level features. "Deep" is the technical term in the model Indicates the number of blocks (layers). By stacking multiple modules, A more complex function is realized. Mainly, The backbone of deep learning is Artificial Neural Network (ANN), By the structure of the human brain An inspired computer system. In the human nervous system, While in ANN by neurons Information flows between nerve cells. Sentiment analysis of an image and includes subject recognition. Currently, Google, Facebook and Amazon In the display lookup table They use the CNN algorithm. The task is called face recognition Machine learning algorithms to detect faces and It uses deep learning algorithms. World's largest name-face database Facebook has created something considered. Behind the face recognition The

idea is, Deep learning neuroscience Using networks, Faces of people scanning, Identifying users. This feature on Facebook, Regardless of which user they are tagged with, allows them to report any photos that appear. Facebook user if tagged in a photo, Machine learning algorithms used by Facebook Tagged photo of the user called "Template". Converts the numerical representation of the face. So, for every photo uploaded a unique there will be a template. When a new photo is uploaded, Facebook represents it compared to existing representations, Recommends the tag if there is any match.

IV. Artificial Intelligence

In recent years, In Human-Computer Interaction rapid increase, in the current artificial intelligence context about how humans and machines work together calls for further research. Artificial intelligence, Machine Learning and Internet of Things in various ways To create information are the main source. Information quantity, information diversity and information heterogeneity some of the data flash points for big data. Can be used to make decisions. For supply chain problems dominated by uncertainty, than other IT tools Artificial intelligence can be very useful. Extensive use of artificial intelligence, supply chain, to shape the future of Industry 4.0 Importantly and necessarily by researchers is understood. The term "Artificial Intelligence" (AI), using methods from data to perform actions Forms directly and involving machines that learn to recall features Used to describe a process. Scientific research partly the emergence of AI is not a new concept; its concept dates back to 1965 Going to the "Dartmouth Conference", since then the term has been common Referred to as the "intelligent machine". However, in retrospect, the term intelligent machine does not reveal the purpose of the human-machine interface. Hence, later, the term Artificial Intelligence appeared.

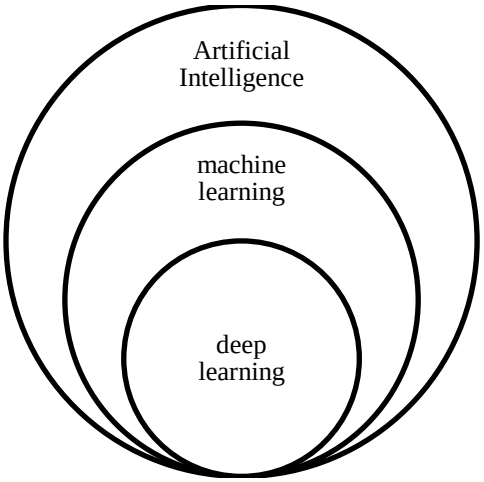

FIGURE 1. Connection for deep learning, machine learning, artificial intelligence

More recently, Principles of Artificial Intelligence are software developments from industrial manufacturing to supply chain services it was argued that it is applicable to any industrial enterprise. A supply chain system consists of multiple layers; each layer Provides massive data, from each layer Integrates data, for smart artificial intelligence applications Creates a link to the required action results. The role of AI for supply chain Exchange between different actors commonly known as networks. This metaphorical distribution, logistics management, procurement, Monitoring and material tracking, Production inspection and control, with fault diagnosis and predictive maintenance is attached. Duan et al's focus on AI is limited to human intervention Participatory decision-making involves changing or supporting issues. Internet of Things (IoT) applications such as manufacturing and distribution As various sectors of the supply chain have changed, Supply chain networks Now with the Internet of Things Recognizing the value of artificial intelligence is significant, IoT is about infrastructures Defined as a group, Attached items Interconnecting and their management, Creates data that allows data processing and access. Specific function along with other equipment can contact. Thus Artificial Intelligence Supply Chain Management (AISC) Search optimization Personal with customer's direct relationships to cultivate and that starts with using the Internet of Things to make decisions. At AISC, for specific clients or under specific circumstances Creating customized products a manufacturing process can be designed to be automated.

V. Visually impaired persons (VIPs)

The visually impaired (VIP) constitute in population A significant portion And they are of the world They are in every corner. In recent times, technology is in every domain proved its existence and innovative devices Helping people in all fields, In particular, artificial intelligence dominates It has outperformed other trades. Object/obstacle detection and recognition, navigation etc and movement VIPs need help with daily living tasks, Especially In indoor and outdoor environments. Also, the safety of these people and security is the primary concern. A number of devices for the assistance of VIPs and applications have been developed. Common challenges faced by blind people are, dependence on others, unemployment, Decreased social interactions, In reading, writing, Difficulty performing daily activities Like transportation, phones and laptops In dealing with drugs difficulty mobile devices, in congested areas Anxiety, walking injuries and revenge. Seemingly by excessive helpers. In particular, transport when the blind are out and about, Pavement and road conditions cannot be accurately assessed. Guide dogs, walking canes and Global Positioning System (GPS)-enabled devices are generally used to deal with such situations.

Although guide dogs can detect obstacles, with their human counterparts Communication patterns are often unclear. Walking canes in detecting ground-level anomalies Very useful; However, their use is stable investigation is required, More branches, such as open windows or wires Useless in detecting obstructions. GPS-enabled devices can help with routing, But the obstacle cannot be detected. Based on an advanced artificial intelligence (AI). Cognitive structure is about the environment By providing a comprehensive, rich understanding, By enabling safe navigation To help the blind can be considered as a better method. On average, 15% are blind every month by air or They hit a suspended barrier. Forty percent of the blind every year aerial or falling from a suspended barrier; Additionally, 95% of blind people While walking on the road Obstacles must be met. In this regard, To the floor or to the knee Below is a white sidewalk with only obstacles can be detected. Thus, visually impaired persons walk aerially and cannot sense suspended obstacles, It can hit a person with objects. Can cause serious injury. This device enables Blind people without any hassle Can move indoors and outdoors. This device is about obstacles Forwards information in advance without information overload to its user, And information through functional and auditory methods Sent to the person. It has ultrasonic sensor and wet pad, GSM and GPS Module, Gyroscope, Radio frequency recognition vibration motor, Universal Module Positioning System and battery etc. Consists of several components. The system was evaluated by 80 blind people and proven successful in a variety of situations. Unlike other electronics, known as the NavCane device in indoor environments Detects obstacles. It is a low power consumption device; it's in the vehicle also considered a low power consumption system. This NavCane is against white cane Analysis indicates that prevention improves performance. L. Run, S. Helal and S. Moore for the blind acknowledging the lack of a navigation system, it works both outdoors and indoors. Hence, wearables with wireless connectivity and voice communication they are called Drishti Propose the system; it helps a blind person to move anywhere inside and outside the house. Drishti's proposed system Like "Sonar Object Detector" application; it works both indoors and outdoors. Compared to Trishti's wearable computer, the app I developed was just a smartphone app. As a result, Trishti is more than just a product announcement app Similar to an app that provides assistance to a visually impaired person. However, Trishti is more expensive than the free app. Released in 1996 This research paper, With the visually impaired Regarding how GPS systems may work They conducted Describes the experiment.GPS receivers in wireless phones carried by the blind, A successful experiment tested how well they recognize their location in relation to the environment. Especially when it comes to GPS when syncing with Google Maps This paper is similar to mine. This article is from 1996 Note that published, Phones since then Great progress has been made. "Sonar Object Detector" app, which did not exist at the time using a smartphone app. So, this paper is similar to mine, A bit outdated.

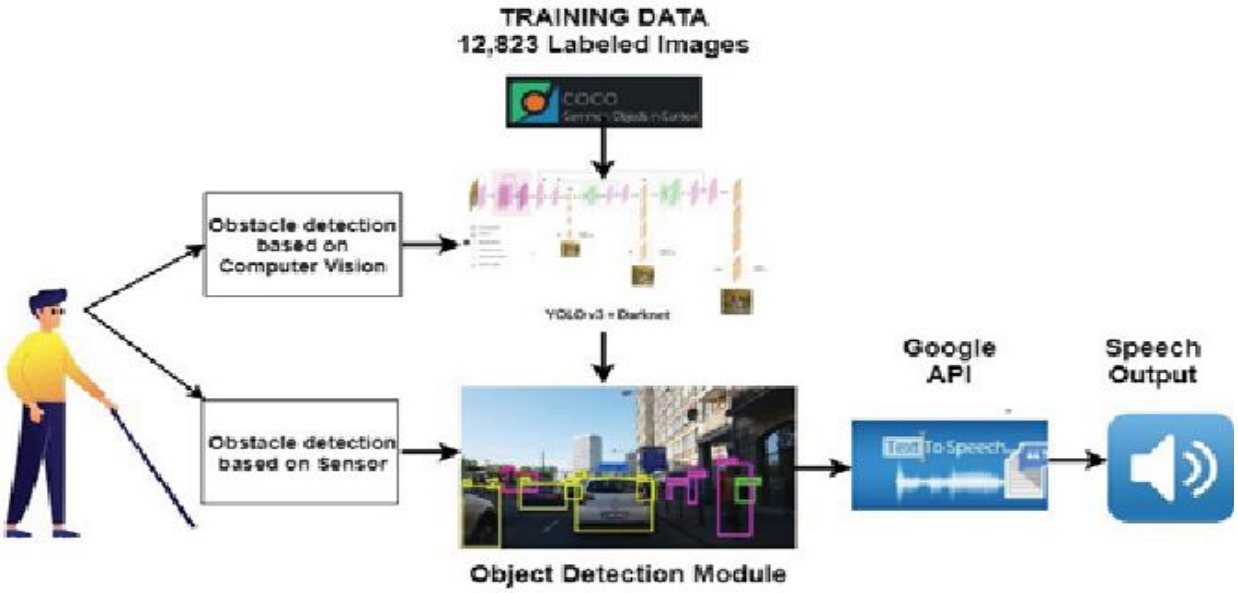

FIGURE 2. Training Data 12823 labeled Image

VI. Conclusion

This chapter is about artificial intelligence a deep historical perspective on learning and its mechanisms we also briefly introduced the abstract description. Also, the application in social networks deep learning methods, Mainly image coding, referral engines, Visual search, detection of bad content, Semantic analysis and text translations We shed light. In the future, social networks the scope will certainly expand. Hence, deep learning algorithms Growth is unique in its own right has implications. This study is for the blind Computer vision based presents the navigation system and in the introductory section Problems presented trying to solve. The proposed method for comparable apps in various situations and in the App Store is tested against. Various conditions of use Works well under and inventions than its competitors shown to be fast and efficient. For visually impaired users the program is somewhat accessible, because it's on their mobile phones it helps to start by placing an earphone jack, this is not the case in many applications. This program in its current version can be used for navigation, but it has some restrictions. Assists partially sighted people in navigation and a system that detects objects around the user this paper proposes that proposed system Tested against multiple conditions and Applications of similar interest. Applications in

situations Works beautifully and efficient; it is noticeable from the observations that it is consistent and fast. Partially sighted This app is easy to access, Also in app audio format Given the output, for partially sighted people who miss out on other apps It will be very useful. Of application at present, this app can be used for navigation, but there are some limitations. By this to the blind Empathize with them and they are like normal people It is hoped that people will understand that it is possible to live.

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