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Sign Language Detection

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Abstract: *Speech-impaired individuals use sign language to communicate, but since most people do not know sign language, there is a communication gap between them. The sophisticated technology of today can close this gap. A system that translates sign language into text or voice can be created using technologies like image processing and machine learning. Dumb individuals can benefit greatly from these systems since they can readily speak with anyone who is using them. This essay offers a succinct overview of the numerous research projects that have been done in this area thus far.*

Keywords: Indian Sign Language Recognition; Gesture Recognition; Sign Language Recognition; Grid-based feature extraction; k-Nearest Neighbours (k-NN); Hidden Markov Model (HMM); Kernelized Correlation Filter (KCF) Tracker; Histogram of Oriented Gradients (HOG)

I. INTRODUCTION

Because communication allows us to express ourselves, humans rely heavily on it. Speaking is one of the most common forms of communication, but we can also communicate through body language, reading, writing or visual aids. Unfortunately, there is still a communication gap for the minority with speech and hearing problems. Visual aids or interpreters are used to communicate with them. These methods are time and money consuming and should not be used in emergency situations. Sign language relies heavily on physical contact to convey meaning. They combine hand shapes, directions, and hand, arm, or torso movements to depict the speaker's thoughts. Fingerspelling, which builds words letter by letter, and word-level association with hand gestures are both ways of expressing word meaning. Finger spelling is an important way in sign language to convey names, addresses, and other things that don't make sense at the word level. However, finger spelling is uncommon because it is difficult to learn and use. Furthermore, there is no common sign language, and very few people know it, making sign language a substitute for spoken language. A finger spelling classification method in sign language can overcome this problem. The accuracy of multiple machine learning methods used in this work is monitored and compared.

II. EXISTING SYSTEM

Big data analytics professionals use predictive analytics to predict future possibilities for data modeling. It is used to develop analytics and focus on its production. There is nothing there. Data analysis and assessment are done using techniques. Some of the techniques are classification algorithms associated with mining, clustering and association rules. SVM, C4.5, RepTree, J48, kNearestNeighbor, Naive Base, and Neural Networks are only few of the methods that may be used. Utilized methods include priority, Fp, and K for clustering. Soil classification is a tool for organising the wide variety of Earth's soils based on their characteristics. Additional applications of soil data mining include crop prediction, the selection of appropriate crop rotations in light of historical crop rotations in the same location, and the analysis of up-to-date information on soil nutrient levels. It's flexible and may be used for anything from keeping tabs on field data to managing operations in the field. Hadoop, HDFS, MapReduce, Pig, Hive, Storm, and Mahout are just a few of the big data technologies available today. There is a vast volume and diversity of information in the agriculture industry [5].She is processing data with emphasis on information with the help of electronic agriculture. It involves an innovative approach to learning about design, conceptualization, development and evaluation with an emphasis on the agricultural industry.

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III. PROPOSED SYSTEM

Cloud databases are used to store and distribute information about crops, fertiliser pricing, and crop prices. The agricultural sector may benefit from cloud computing's intelligence, scalability, predictability, and optimization. Gives farmers access to low-priced and useful information. When it comes to obtaining data, IoT is important in the agricultural sector.

3.1 Objectives:

- To identify the Soil quality through image processing
- To classification of crop suitable for the tested soil
- Measure the nutrition present in the soil
- Send the information to farmer mobile app through Wi-Fi

3.2 Expected Outcome of the Proposed Study:

The primary aims of an epileptic detection and monitoring tool are thoroughly examined in this study. In addition, we provide the architecture for a particular platform for epilepsy detection and monitoring that satisfies these requirements. The component of the platform that the patient should wear has received special consideration, and information about it is provided. In order to make certain design decisions, a deployment of an implementation and a number of planned and executed tests have finally been made.

IV. HARDWARE AND SOFTWARE REQUIREMENTS

Hardware Requirements:

- Stereo Cameras
- Controller-based gestures
- Single camera

Software Requirements:

- Python Libraries
- OpenCV
- Vs code IDE

V. CONCLUSION

The main objective of a sign language detection system is to provide the deaf and hearing, a useful way to communicate through hand gestures. The proposed system can be used with a webcam or any other integrated camera that detects objects by detecting and processing their indices. The model results allow us to confirm that the proposed system can provide accurate results in the presence of controlled light and intensity. Additionally, additional motions can be easily added and the model will become more accurate with more images taken from different perspectives and frames. As a result, the model can easily be scaled to a larger size by expanding the dataset. Due to environmental factors such as low light levels and uncontrolled background, the accuracy of pattern recognition is limited. As a result, we try to solve these problems and increase the data set to get more accurate results.

REFERENCES

[1] Microsoft, “Kinect Fact Sheet,” 2010. [Online]. Available: www.microsoft.com/enus/ news/presskits/xbox/ docs/kinectfs.docx.
[2] W. C. Stokoe, “Sign language structure: an outline of the visual communication systems of the American deaf. 1960.,” J. Deaf Stud. Deaf Educ., vol. 10, no. 1, pp. 3–37, Jan. 2005.
[3] World Federation of Deaf, “Convention on the Rights of Persons with Disabilities - Sign Language,” 2013. [Online]. Available:http://wfdeaf.org/human-rights/crpd/sign-language.
[4] Poulation Reference Bureau, “Population data sheet,” 2013.

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[5] P. M. Lewis, G. F. Simons, and C. D. Fening, "Ethnologue: Languages of the world (17th edition)," 2013. [Online]. Available: http://www.ethnologue.com/. [Accessed: 03-Dec2013].
[6] K. Emmorey, Language, cognition, and the brain: Insights from sign language research. Psychology Press, 2001.
[7]"Myths and misconceptions about Sign Language." [Online]. Available: http://labspace.open.ac.uk/file.php/2467/!via/oucontent/course/166/d251_1blk1.24.pdf. [Accessed: 14-Dec-2013].
[8] S. K. Liddell, Grammar, gesture, and meaning in American Sign Language. Cambridge University Press, 2003.
[9] W. Sandler, Sign language and linguistic universals. Cambridge University Press, 2006. [10] R. Battison, "Lexical Borrowing in American Sign Language.," 1978.
[11] S. Lang, M. Block, and R. Rojas, "Sign language recognition using kinect," Artif. Intell. Soft Comput., pp. 394–402, 2012.
[12] U. Bellugi and S. Fischer, "A comparison of sign language and spoken language," Cognition, vol. 1, no. 2, pp. 173–200, 1972.
[13] S. C. W. Ong and S. Ranganath, "Automatic sign language analysis: a survey and the future beyond lexical meaning.," IEEE Trans. Pattern Anal. Mach. Intell., vol. 27, no. 6, pp. 873–91, Jun. 2005.