Application to Assist Children with Dyslexia

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Abstract: *Learning is necessary for success in the childhood educational and future adult work environment. This article reviews the changing terminology for specific learning disabilities (SLD) in reading, mathematics, and many more and describes the emerging genetics and neuroimaging studies that relate to individuals with learning disabilities. It is important to maintain a developmental perspective on learning disabilities, as presentation changes with age, instruction, and the different models (educational and medical) of identification. Intervention requires a systematic approach to screening and remediation that has evolved with more evidence-based literature. Newer directions in behavioral, educational, and novel interventions are described. In this study, we have created an interactive and user-friendly platform to help parents or teachers to identify symptoms of Dyslexia in children. As the parents can identify these symptoms at an early age, it would be beneficial for the kid's future. This is because the early diagnosis will alert parents and encourage them to get trained, resulting in them being ready to help their kids at an earlier stage. As a result, early detection and diagnosis of Dyslexia would help in growing confidence among children, which would benefit the child's future as it would make learning easy for them.*

Keywords: Dyslexia, Intervention, Accessibility, Authentication, Login, learning disorders; Mathematical disability; childhood; interventions

I. INTRODUCTION

Dyslexia (dis-LEK-see-uh) is a type of learning disability. A child with a learning disability has trouble processing words or numbers. There are several kinds of learning disabilities - Dyslexia is the term used when people have trouble learning to read, even though they are smart enough and want to learn.

Dyslexia is a learning disorder that involves difficulty reading due to problems identifying speech sounds and learning how they relate to letters and words (decoding). Also called reading disability, dyslexia affects areas of the brain that process language. People with Dyslexia have normal intelligence and usually have normal vision. Most children with dyslexia can succeed in school with tutoring or a specialized education program. Emotional support also plays an important role. Though there is no cure for Dyslexia, early assessment and intervention result in the best outcome. Sometimes Dyslexia goes undiagnosed for years and is not recognized until adulthood.

Dyslexia is a specific learning difficulty that mainly affects reading and spelling but can also affect other skills such as writing, spoken language, and numeracy. A specific learning difficulty comprises a distinctive pattern of strengths and weaknesses in learning and information-processing skills. The importance of early detection of learning disabilities like Dyslexia cannot be overstated. Dyslexia can profoundly impact a student's ability to read and write. Without these invaluable language skills, students with Dyslexia can experience avoidable and lifelong educational, social, and economic problems.

Dyslexia can be developmental (genetic) or acquired (resulting from a traumatic brain injury or disease), and there are several types of Dyslexia, including phonological Dyslexia, rapid naming dyslexia, double deficit dyslexia, surface dyslexia, and visual Dyslexia.

WORK DONE

For the detection of Dyslexia, a new methodology is proposed to detect if the child has any learning disability or not. These apps need to know the identity of a user. Knowing a user's identity allows the app to securely save user data in

the cloud and identify if the user is suffering from Dyslexia or not and get the same personalized experience across all of the user's devices.

The proposed approach can be divided into three phases:

Registration/ Login phase Selection of games

Accessibility Buttons

After successful completion of this phases we an detect if a child is dyslexic or not and can move forward to the Treatment of Dyslexia at early stage.

II. LITERATURE SURVEY

The paper [1] by Delgado and Gustavo Rafael Escobar demonstrates that a learning disability can affect education, social, and Neuropsychological differences, affecting the accurate perception of social cues. Owing to their average or above-average intelligence, there exists a gap between the individual's potential and actual achievement. Although learning disabilities cannot be cured or fixed, achieving success in school, at work, in relationships, and the community is possible with appropriate support and intervention.

The paper [2] by Wood, Sarah G., et al explains that unexpected significant deficits (e.g., decoding, fluency) in reading and its component skills are observed in Individuals with reading disabilities, despite potential educational opportunities. Inaccurate and slow word reading and reading of the connected text, making comprehension challenges, are some common problems found in individuals with reading disabilities.

Some students with reading disabilities are relatively accurate at decoding but are slow readers and may be unable to keep up with reading assignments.

The paper [3] by Elena L Grigorenko 1, Donald L Compton utilized Text-to-Speech & Related Read-Aloud Tools to improve Reading Comprehension in Students with Reading

Disabilities. On one hand, this software is used to translate written text into spoken text and enables one to listen to written text while reading along. One of the causes of Reading Disabilities is a struggle to decode written text due to which, it creates a negative effect on reading comprehension by decreasing word reading accuracy and speed.

III. IMPLEMENTATION
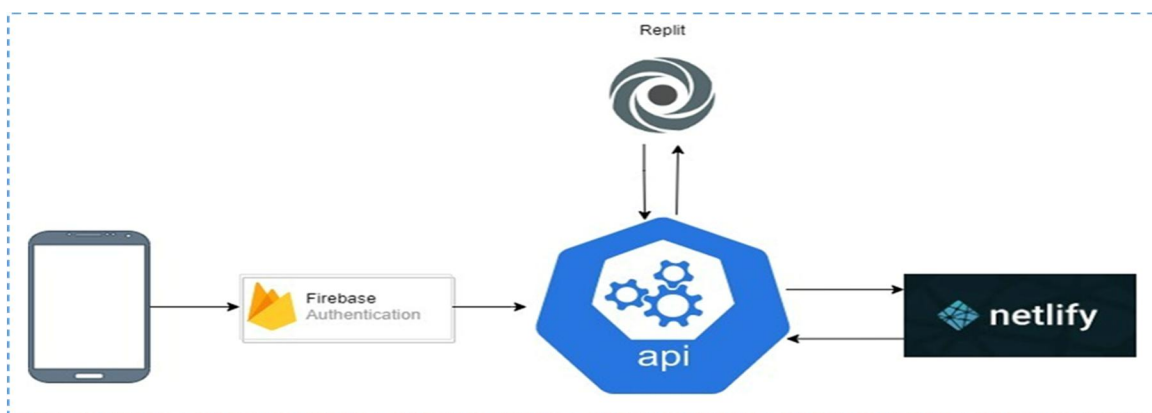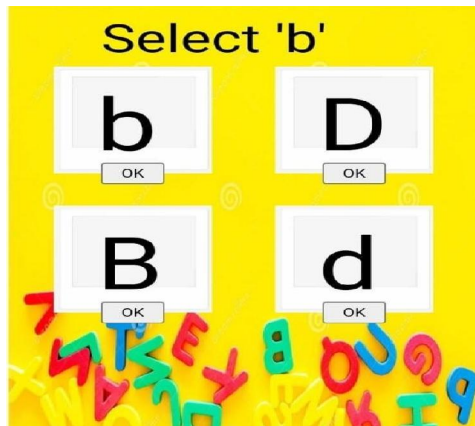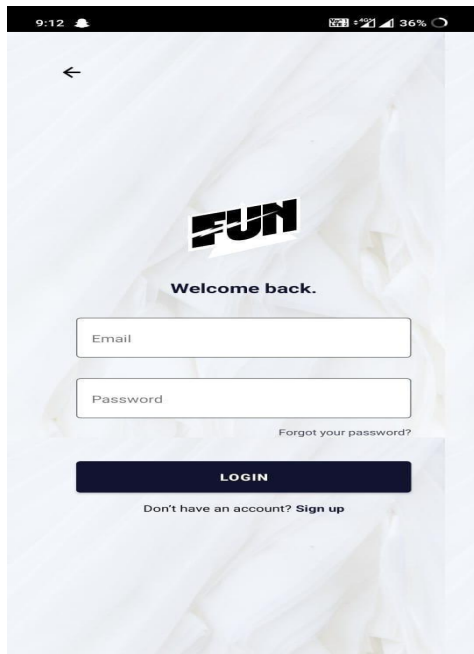
IV. CONCLUSION

Currently, Dyslexia is common but it's not easily detectable. With this application we can discover if the child is having Dyslexia or not. Also some dyslexic children hesitate to say things like if they are hungry ,they want to wash hands or they want to use the washroom , but with the help of this application they can easily say these things just with one click . The User Interface of this application is so child friendly which will help children learn things without getting bored

REFERENCES

[1] Menéndez, I.Y.C., Napa, M.A.C., Moreira, M.L.M. and Zambrano, G.G.V., 2019. The importance of formative assessment in the learning teaching process. International journal of social sciences and humanities, 3(2), pp.238-249.

[2] Masonbrink, A.R. and Hurley, E., 2020. Advocating for children during the COVID-19 school closures. Pediatrics, 146(3).

[3] Grigorenko, E.L., Compton, D.L., Fuchs, L.S., Wagner, R.K., Willcutt, E.G. and Fletcher, J.M., 2020. Understanding, educating, and supporting children with specific learning disabilities: 50 years of science and practice. American Psychologist, 75(1), p.37.

[4] Kacetl, J. and Klímová, B., 2019. Use of smartphone applications in english language learning—A challenge for foreign language education. Education Sciences, 9(3), p.179.

[5] Cheng, S.C. and Lai, C.L., 2020. Facilitating learning for students with special needs: a review of technology-supported special education studies. Journal of computers in education, 7(2), pp.131-153.

[6] Dasari, A., Proddaturi, R., Vasaraju, S.P. and Nara, K., 2021. KruthVidya—Mobile App to Detect Dyslexia. In Smart Computing Techniques and Applications (pp. 441-453). Springer, Singapore.

[7] Gupta, T., Aflatoony, L. and Leonard, L., 2021, October. Augmenta11y: A Reading Assistant Application for

[8] Children with Dyslexia. In The 23rd International ACM SIGACCESS Conference on Computers and Accessibility (pp. 1-3).