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BEng/BEng (Hons) in Computer Science Specialized in Web and Mobile

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**AULEARN**

(Multisensory learning approach to create a Sentence learning platform for  
Students with Autism Spectrum Disorder)

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## Abstract

Students with Autism Spectrum Disorder have difficulties in understanding written language. They are unable to visualize a correct image in their mind by reading a sentence so they take more time to understand a concept from a written text. Psychologist and researchers observed that the autistic students can grab the concepts from images and audio more than the concepts from written text. Based on this, some researchers have come up with some learning techniques, among these techniques the multisensory learning technique is more advanced because it uses both visual and auditory approaches to teach the students with autism spectrum disorder. Currently teachers spend lot of time with multisensory learning technique to teach sentences to their Autism Spectrum Disorder children by using images of the objects relevant to the sentence and pronouncing the words. So the problem identified to be addressed is the practical issue to follow the multisensory learning approach in autism spectrum disorder children learning process because there isn't any practical method to store object images, select object images, arrange images dynamically as explained in a sentence and there isn't any easy method to pronounce each word in a sentence until the child gets a clear idea about the sentence. The proposed solution introduces a new Algorithmic approach to create Sentence learning software platform to Help the sentence learning process by representing a sentence visually and auditory for the Autism Spectrum Disorder Students. This new approach enriched with both the visual and auditory learning components to act as a multisensory learning approach. Implementation of Aulearn have completed with JavaScript, Python, PHP. Animation purposes Three.js and Natural Language processing has done with the help of NLTK library. Testing process of Aulearn executed as both quantitative and qualitative. After evaluating outcomes of the Auleran project with expert opinions other facts, Conclusion has made that the Aulearn product is ready to help ASD students in their sentence learning process.

Keywords: Autism spectrum disorder,

Multisensory learning approach,

Sentence learning platform