

## **Designed Artefacts for Analyzing and Evaluating Autism Spectrum Disorder (ASD)**

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According to the recent statistics, 1 in 63 children are affected with Autism. Autism is a neurodevelopment disorder of early childhood, it is a condition that occurs due to the abnormal growth of mind, where these children exhibit extra-ordinary behavioral patterns. There is no well-defined treatment for Autism Spectrum Disorder (ASD), and early diagnosis is essential to manage the condition. An ICT based artifact (more specifically, a set of software) can be introduced as a novel approach, which intends to expose the child behavior. Furthermore, the outcomes of such an artifact could be used by any psychiatrist for predictions of ASD. These artifacts are designed by considering three main impaired areas of ASD which are Eye Contact, Maturity level, and Intelligence level. Therefore, the developed system is comprised of an Eye Movement Tracking tool where a common sample video is shown to the participants and a record of their eye movement is taken and this recorded data is then processed and finally displayed graphically. A module capable of identifying the Maturity Level provides a drawing canvas where participants are allowed to draw shapes and the analysis is done by the way they draw correct shapes with time in graphs. Moreover, an Intelligence Level Measuring Tool compromised with color and number-based activities is used and their responses are taken for decision making. Besides, these artifacts are capable of giving an analysis by comparing both ASD patients and a Neurotypical person. Testing and evaluation of the system were done with three (3) ASD patients and ten (10) Neurotypical persons from the age groups of 3-5 years. This experiment showed that, computer-based software tools are effective for acting as a platform to provide data and for taking decisions in ASD predictions.

*Keywords:* Autism Spectrum Disorder (ASD), Eye contact, Intelligence level, Maturity level, Neurotypical person