

# **MiracleMinds: Autism Spectrum Screening Tool and Parental support**

**Rosco Dylan Gerad Tanner**

A dissertation submitted in partial fulfilment of the  
requirement for Bachelor of Science (Honours) degree  
in Business Information Systems

**Department of Computing**  
**Informatics Institute of Technology, Sri Lanka**  
in collaboration with  
**University of Westminster, UK**

**2021**

## **Abstract**

Autism spectrum disorder is a neurodevelopmental disorder that manifests in the first three years of life. Early identification of toddlers with autism spectrum disorder (ASD) is important for ensuring that they receive targeted early intervention services. People with Autism spectrum disorder (ASD) have, Difficulty with communication and interaction with other people, Restricted interests and repetitive behaviours and Symptoms that affect the person's ability to function in school, work, and other areas of life. Parents of autistic children generally exhibited high levels of anxiety and depressive symptoms. The core symptoms of the autistic children were observed to be strongly associated with depressive symptoms. Mothers' emotions impact effective parenting during infancy. Strong negative emotions in parents may disrupt cognition and decision making.

This study proposes a methodology for dealing with the problem of not getting early intervention for toddlers in the autism spectrum disorder. The aim of the project is to analyse and identify autism symptoms of children in the ages of 12 to 36 months and to gauge the emotional state of parents, furthermore, to design, develop and evaluate a system that will include a standardized preliminary screening tool and a functionality of connecting parents with domain experts to get diagnosis along with providing support to manage the neurodevelopmental condition. The project focuses to resolve the factors that contribute to these toddlers going undiagnosed, untreated, and unsupported.

A questionnaire using google forms was administered to a sample of domain experts and parents, as well as interviews with experts in the field of Autism Spectrum Disorder, were used to validate the findings of previous studies on the project. The results depicted that having a standardised screening tool for the targeted age group and allow domain experts to provide preliminary diagnosis for early intervention. MiracleMinds was designed and developed capable to screen the targeted age group of children and connect domain experts along with providing emotional support to the parents with toddlers under the spectrum. The prototype was evaluated after it was tested by experts and non-experts to ascertain the project's success in terms of solving the identified problem. Future implantation have been identified and will be developed in the future iterations of the solution.

**Keywords:** Autism Spectrum Disorder, Neurodevelopmental disorder, Preliminary screening tool, Depression status, Personalized diagnosis.