CAC - Companions of Autistic Children

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One of the most common Autism Spectrum Disorder (ASD) type is the congenital autism with low intelligence and limited speech (accounting for 68% of all cases). This ASD type has negative effects on the children, causing anxiety for parents and society. Based on the psychology of children having this typical type and succeeding previous studies, we designed an IoT kit called CAC (Companions of Autistic Children), including: a game on Android smartphone helping the children train their perception and reflex with 4 levels; a playing table enhancing their logical thinking; a wheel attracting them to our kit and controlling their habit of spinning toy wheels; a wearable device developing their tactile response. To test our kit's effectiveness, the team conducted an experiment on 3 children having this ASD type and observed changes in their abilities, behaviors & brain structure over 90 days. The results of the experiment and MRI images of objects' brains showed that those using a combination of Applied Behavior Analysis (ABA) and CAC kit had significant advancements in their abilities and behaviors (18/23 aspects improved). For instance, they can remember their family members' names, have basic knowledge about the surrounding world. There were also changes in their brain structure, such as: the cerebellum has expanded, the amygdales have shrunk, blood flows in frontal & temporal lobes have significantly increased. To summarize, the research team has completed the CAC product kit and the combined treatment plan, which has the efficiency of 75 - 80% in improving abilities and behaviors of the specified ASD children (compared to using ABA alone). With this kit, the team hopes to improve the quality of life for these children, reduce the burden on parents and society.

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