Autistic Aid: An E-Learning Tool for Autistic Children

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Abstract: It is a tool for parenting a special child, is an application designed for android phones. The major aim of the application is to support the children suffering from Autism Spectrum Disorder (ASD). The android application focuses on helping the parents to deal with the problems that they face while upbringing their autistic child. Through our application, we try to provide knowledge to the caretakers and the parents about the stereotypical behaviour of the child suffering from the disorder. We also make a point to tackle with the situations. The application will also take efforts to make sure that the child is well groomed in the fields of learning skills and communication. The application makes use of audio video teaching tools with other advanced educational software’s.

Keywords: Autism, Asperger’s syndrome, Autism spectrum disorder, Android.

1. Introduction

1.1. What is Autism Spectrum Disorder (ASD)?

Autism is a brain developmental disorder. A person or child suffering from autism have trouble in social interaction and communication, shows repetitive behaviours, and have restricted interests. The consequences of ASD on everyday life are extremely variable. The general public is now more aware of this type of disorder. Out of 1000 children, almost 15 eight years old children has been identified with Autism. ASD is five times more common among boys than among girls. People suffering from autism face problems in their day to day life. Every individual in autism is unique with unique needs and abilities hence it is important to keep in mind that they will experience or face the problems and issues in a unique way or may not face them at all.

1.2. Types of Autism

There are basically 5 types of autism disorder:

1.1.1. Asperger’s Disorder: It is the most common type of autism. Children suffering from ASD are often misdiagnosed, to have Obsessive-Compulsive Disorder(OCD). These children are very unskilled with social interactions and have repetitive motions and patterns. They are often clumsy ,and have above average language skills. They don't use them well in social situations .Those children suffering form Asperger's are talented, and highly intelligent.

1.1.2. Kanner's Syndrome (classic autistic disorder): This type of autism was named after a Dr. Kanner. This is the well-known type of this condition that is very common. A person suffering from Kanner's Syndrome have very limited emotional connection, and are mostly into their own little world. They want everything to be repetitive all the time, and can be deeply affected by noises, bright lights and smells. They have extremely poor social and communication skills.

1.1.3. Pervasive Developmental Disorder (PDD): They have most of the same symptoms as Kanner's Syndrome. They will need same help as autistic children require. The differences between PDD and autism are minor and usually only obvious to researchers and doctors.

1.1.4. Rett’s Syndrome: It is a rare type of autism, and it seems to only happen in girls. They have problems with muscle atrophy, and tend to do repetitive hand motions. To some degree they are mentally retarded.

1.1.5. Childhood Disintegrative Disorder: It is a pretty rare type of disorder. The children appear to be normal at birth, but shows the symptoms during later stages of brain development. Usually affect the age group of 2-4 years of age. These children begin to regress, and often do not potty train. They easily lose the will and they lack ability to interact with others, and also have problem with the motor skills.

1.3. Signs and Symptoms of ASD:

The common signs and symptoms shown by an autistic person are as follows:

• Seems to be in their own world
• Lack of eye contact
• Doesn’t share enjoyment or interests
• Lack of emotion or empathy
Doesn’t respond to their names, and use gestures
Lack of interest in other children or peers
Have intense interest in certain objects, and focus narrowly on an object.
Have difficulty understanding and following simple instructions

2. Existing System:

Many programs have been made so far for autistic people. In this section, several of those programs will be examined and their pros and cons will be identified.

2.1 TeachingPix2

TeachingPix2 is software that is used worldwide by many mainstream schools, specialized schools, language and speech therapists and parents that want to teach their child at home. This software includes 10000 flashcards in 65 categories that can be previewed and used to teach children speech, language, communication and social skills. This program works mainly as a database for images and a description of that image. This software is ideal for teaching autistic children since many known therapies involve pictures and using them to explain desires and behaviours. The bad thing about this software is that it is not designed to be simple. It is almost impossible for an autistic child to study this software on its own and it doesn’t involve any exercises for the children. This means that they don’t receive any feedback except having one of its parents to praise it for its achievements. This software should mainly be used by parents to print out or/and let the child study them and learn the expressions that follow each picture. This software contains several bugs but nonetheless if it is used correctly, it should make a good addition to other software that focus on teaching autistic children (Early learning site, 2008).

2.2 Teach Town

Teach Town is software that is specially developed for autistic children and one or more supervisor. A parent needs to register as a supervisor and can then supervise a certain number of autistic children. The program is linked to a special server via the internet and recommends for each child appropriate exercises. These exercises are both computer lessons and off computer activities, it is recommended to focus on them equally. The software has two different interfaces, one for the supervisor and one for the student. The student interface is made simpler and more accessible than the supervisor interface. The idea and the design behind the software are good and there don’t seem to be many flaws in it. The computer lessons are well laid out and practical for the teaching of an autistic child. The only thing that might be a little problem with the software is that; in the student interface, the child might get overloaded with information that it might not understand because of its disorder. In the whole this software is good and it seems like the developers have put a lot of effort in which makes it a good choice for a parent of an autistic child (Teach Town, 2008).

3. Our Approach

“Figure 1. Block Diagram” shows block diagram of proposed system. The contents of block diagram are as follows:

3.1 Daily Schedule:
The schedule will be stored in the database containing tasks from morning till night like reading newspapers or books, meal and medicine timings and so on

3.2 Personal Information:
The database will contain address, age, contact number, user name of caregiver.

3.3 Family Information:
The user stores information about his/her family members and the relationship between the user and the member

3.4 Test:
User can take a 20 questions test to check if he/she has autism or not.

3.5 Food and Medicine Reminder:
Push notification or through alarms will remind users about their food and medicines.

3.6 SOS Button:
A featured button will be given for the user to use in any emergency situation if user is in need of any help. The button will sends a message automatically. The message will contain user’s current location which will be given to the person mentioned in personal information.

3.7 Quiz and Flashcards:
This option will contain games to stimulate the user’s brain and the overall performance will be recorded in the progress report.

3.8 Treatment and Rehabilitation Centre:
This option contains list of medicine, exercises to be performed by the users suffering from ASD and details about the rehabilitation centre.
3.9 Autism Information:
It includes detailed information related to Autism and its types.

3.10 Routine Tracker:
Keeps tracks of all the routines related to the user.

4. Conclusion
Through balanced understanding within the team members we have been successful in designing, planning and documenting the application called “Autistic Aid”. We have studied the features, and drawbacks of systems such as TeachingPix2, Teach Town based on Autism.

As we are focusing on enhancing the social skills, communication, grasping power of the child, the app will prove out to be very useful for him/her. Including parents’ experience through different ways of communication will also be our priority. The app will help the child to address his/her educational and individualized needs. The app is designed using multimedia and other technologies to help the child immensely as well as the parents.”Our goal is to satisfy the child’s needs”.

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6. References