ASTUTE REMEDY FOR AUTISM “DEVELOPING AN INTERACTIVE REAL TIME APPLICATION ALONG WITH A HARDWARE PRODUCT TO HELP YOUNGTERS WITH AUTISM”

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Abstract. The general terms of complex disorders of brain development are Autism spectrum disorder (ASD) and autism. Difficulties in social interaction, verbal and nonverbal communication and repetitive behaviors are characteristics of this disorders. So an interactive application is proposed which will help an autistic child in his or her speech ability along with the verbal communication ability. A complete guide has been prepared to help the caretaker in curing of autism. Also doctors can be contacted whenever needed through the contact numbers specified according to the location of the patient. As children loves to learn new things visually we developed a real time pictographic images to teach them about the known things in their surroundings. Moreover, the child will also be taught about small sentences along with the basic mathematics. Their progress can be evaluated through the module.

Keywords. Autism spectrum disorder, social interaction, communication ability, visually, pictographic, modules

1. Introduction
This paper analyzes the technologies most widely used to work on areas affected by the autistic spectrum disorder (ASD). This disorder is written off as by difficulties in social communication, social interactions, and repetitive behaviors. It is diagnosed during the first three years of life. The types of treatments can generally be diverse and categorized into the following ways: behavior and communication approaches, dietary approaches, medication, complementary and alternative medicine. Careful and user friendly methodological evaluation is needed to assist the therapists and clinicians in their selection of suitable tools. These methodological approaches also guide the developers of the technologies in improving hardware and software. Here the main features involve: learning therapy through video, real time pictographic symbols, social robots, eye trackers, movement trackers, electrodermal activity monitors, tactile sensors, vocal prosody and speech detectors all of which are classified by the areas they center on: communication, social learning and imitation skills.
1.1. Problems faced by autism affected people:

1.1.1. Communication difficulties
The autism children may tend to be delayed in babbling, speaking and learning to use gestures. Some infants who later develop autism and babble during the first few months of life before losing these communicative behaviors.

The difficulties in expressing language automatically can cause wrong assumptions by many parents. But this is not always the case. The difference between expressive language and receptive language is important to understand. The challenges faced by the children in expressive language are often unable to express what they are thinking through language, whereas children with difficulties in receptive language are often unable to understand what others are saying.

The most other common difficulty is the inability to understand body language, tone of voice and expressions that are not meant to be expressed literally. An adult with autism might even interpret a sarcastic “Oh, that’s just amazing!” as meaning it really is amazing. But to say conversely, individuals who are affected by autism may not exhibit typical body language as others. Their movements, facial expressions and gestures may not match with what they are saying. The tone of their voice may also fail to reflect the feelings. A high-pitched sing-song or a flat, robot-like voice may be used. This can make difficult for others to know they want and need. In turn, this failed communication can lead to inappropriate behavior (such as screaming or grabbing) and frustration on the part of the person with autism.

The autism children will often have difficulty in knowing others and what they want or need until they are taught how to communicate through speech, gestures or other means.

1.1.2. Repetitive behaviors
Unusual repetitive behaviors and/or a bent to interact during a restricted range of activities are another core symptom of autism. The repetitive behaviors include which are common like hand-flapping, rocking, jumping and twirling, arranging and rearranging objects and repeating sounds, words or phrases. Sometimes the repetitive behavior is self-stimulating, such as wiggling fingers ahead of the eyes.

The form of intense preoccupations or obsessions can be taken by repetitive behaviors. These extreme interests can prove all the weird for his or her content (e.g. fans, vacuum cleaners or toilets) or depth of data (e.g. knowing and repeating astonishingly detailed information about Thomas the Tank locomotive or astronomy). Grown up children and youngsters with autism may develop tremendous interest in numbers, symbols, dates or science topics. A lot of Children with autism need and demand absolute consistency in their environment.

1.1.3. Unique abilities of autism affected children:
Just as individuals with autism have a variety of difficulties, they also have some distinctive strengths. Some of the special features that individuals with autism have may include:

- Ability to know concrete concepts, rules and sequences
- Strong long term memory skills
- Math skills
- Computer skills
- Musical ability
- Artistic ability
- Ability to think in a visual way
- Ability to decode written communication at an early age (This ability is called Hyperlexia)
  – some children with autism can decode written communication before they will comprehend written language.)
- Honesty – sometimes to a fault
- Ability to be extremely focused
  – If they are performing on a preferred activity
- Excellent sense of direction.

Here are the pictures of some famous personality with the same disorder:

BILL GATES

ALBERT EINSTEIN

ISAAC NEWTON
2. EXISTING SYSTEM:
   - The existing system analysis the symptoms of autism affected people and takes respective steps to cure it.
   - The pervasiveness of autism spectrum disorder (ASD) is steadily increasing and placing more demands on already overburdened diagnostic and treatment systems. A mind blowing, systematic reorganization of autism service delivery may reduce delays and better meet the growing need.
   - The Existing System Mainly Focuses On Vocal Prosody Having a One Way of Communication. It Also Involves Teaching Children with Simple Pictures Through Prerecorded Voice. Regular Therapy Is Given for Children Below 2 Years of Age.
   - A unique therapy called Mental Imagery Therapy for Autism (MITA), Early Intervention Application for Children with Autism Spectrum Disorder (ASD).
   - The Puzzles Target Three of 4 Critical Areas of Development Supported by PRT response to Multiple Cues, Motivation and Self-Management.
   - It Includes Nine Adaptive Games That Develop a Child's Mental-integration Ability as Well as Train Their Language Functions. By all the way, these Puzzles Offer a More Conventional, Verbal Approach to Facilitating Language Acquisition Starting with Simple Vocabulary. As a result, It Is Developed for Early Childhood.
3. PROPOSED SYSTEM:
1. In this system a Child progresses through MITA's Systematic Exercises, He or She Is Developing the Ability to Simultaneously Attend to A Greater Number of Features. Reducing the Propensity towards Tunnel Vision, And Thus Developing an Essential Component of Language Need a Better Feature.
2. The power to Mentally Build a picture supported a mixture of multiple Features Is completely necessary for Understanding Syntax, Spatial Prepositions and Verb Tenses. This involves supplying them with basics and then training through them with some simple sentences.
3. Our app Is Designed Intended for Long-term and Daily Use. It is developed to Be Engaging and Educational, As Well as Adaptive and Responsive to the Individual Abilities of Each Child through uploading videos. Also real time pictures can be made to teach.
4. Basis, mathematical problems can be ought to them through animations. Doctors Can Be Contacted Whenever Needed Through The Contact Numbers Specified According To The Location Of The Patient.

4. LIST OF THE MODULES:
   1. Real time pictures of objects
   2. Simple words
   3. Simple sentences
   4. Basic mathematics
   5. Uploading learning videos

5. MAJOR DIFFERENCES:

| EXISTING SYSTEM | PROPOSED SYSTEM |
|-----------------|-----------------|
| Already Defined Pictures | Real Time Pictographic Images |
| Simple Words Are Taught | Words Along with Simple Sentences Are Taught |
6. SOFTWARE REQUIREMENTS:
   - Real Time Pictographic Images Uses a Property of CATEDU.
   - The Development Software Includes:
     - JAVA -> JAVA SE
     - ANDROID SDK
     - MICROSOFT WINDOWS 7/8/10

7. HARDWARE REQUIREMENTS:
   - Adaptation in Hardware: In order to access the computer, some children with autism might require that the standard computer be adapted with certain devices. Listed below are a variety of devices that can assist a child in accessing the computer
     - Touch Window
     - Intellikeys
     - Big Keys and Big Keys Plus
     - Trackballs
     - Digital camera
     - Scanner

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