**KIBABII UNIVERSITY**

**INFORMATION TECHNOLOGY DEPARTMENT**

# Cover page

**PROJECT TITLE: COMPUTERIZED AUTISM APPROACH SOFTWARE**

**Kelvin Ndungu Kamau**

**BIT/0056/14**

* A System Proposal in Partial Fulfilment of the Requirements for the Award of the Degree of Bachelor of Science in Information Technology of Kibabii University

Declaration and Approval

1. Declaration

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Signature Date

Name: Kelvin N Kamau

Reg. Number: BIT/0056/14

1. Approval

Supervisor (1)

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Signature Date

Name:

Department:

Kibabii University

Supervisor (2)

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Signature Date

Name:

Department:

Kibabii University

# ABSTRACT

As stated by the name, of the project ‘computerized autism approach software’ the software will be useful to people who suffer from autism. This work began by studying autism in detail and the people who suffer from it. The software should be fully interactive with user-parent (supervisor), children (individual suffering from autism), such that the supervisor can log in and schedule tasks to be covered by the child.

Autism spectrum disorders (ASDs) are primarily defined by problems with social interaction and communication, but they are also associated with a complex cognitive profile. Computerized Autism approach software is aimed at helping us approach this defect by integrating TQT with graphics (pictures) to help autistic children relate real life.

The objective is to seek to develop the software for autistic children with special needs that will help them improve their condition by engaging them into learning (scheduled tasks).

* Specific objectives
  + At least two
    - For the developer
    - For the system
* Scope:

The project covers psychology department such as Early Childhood Development. It can be useful to both the learners (people with autism disorder) and tutors to assign tasks to them.

* Methodology
* Tools
* Expected results

# Table of Contents (*Should be on a new page*)

# List of Tables (*Should be on a new page*)

# List of Figures (*Should be on a new page*)

# List of Appendices (*Should be on a new page*)

# List of Acronyms (*Should be on a new page*)

AS -Asperger Syndrome

TQT - Twenty Questions Task ASDs – Autism spectrum disorders

ECDE - Early Childhood Development Education

# Operation Definition of Terms (*Should be on a new page*)

## Chapter One: Introduction

## Background Information

Autism refers to a broad range of conditions characterized by challenges with social skills, repetitive behaviors, speech and nonverbal communication. It’s a syndrome that has been on increase for the recent years and everyone can expect to encounter or be affected by autism at any time during their lives. Actually, everyone has probably met or at least seen an individual that suffers from autism. Autism has been studied for almost a century now and many treatments and solutions have been laid out. The estimated extent of ASD in United Kingdom is around 1 out of 100 children, 1 of 59 children in the United States and 1 of 160 children globally. It also seems to affect more boys than girls with the ratio believed to be 3 boys for 1 girl (University of Sunderland, 2008). Autism is a sub-class of autism spectrum disorder which is divided into several categories according to the severity of the symptoms, age of onset and association with other disorders i.e:

* [Asperger's](https://www.webmd.com/brain/autism/mental-health-aspergers-syndrome) syndrome
* Autistic disorder
* Classic autism (infantile autism)
* Childhood disintegrative disorder
* [Pervasive developmental disorder](https://www.webmd.com/brain/autism/development-disorder) (PDD or atypical autism)

In this proposal, the focus is on the first two categories which are classic autism and Aspergers syndrome and when the word autism is used, it is only a reference to those two categories. Classic autism is usually diagnosed when the child is between 18 – 36 months old. Persons who suffer from classic autism have a range of intellectual functioning from below to above average. Asperger syndrome is usually diagnosed later than classic autism since the symptoms are less severe. Person who suffer from Aspergers syndrome have in general intelligence from average to above average. People with Aspergers are harder to identify and are usually just considered eccentric (Organization for autism research, 2008). Most people who suffer from autism seem to be eager to escape from any situation which demands any communication with other persons at all. Most of them are being drawn more and more into the world of technology which can have both positives and negatives for them. The main aim of this project is to make contacts with people who are working in the field of autism. From there to see if it is possible to develop small software which is intended to help people with autism to better their lives and that can contribute to an improved social behavior.

## Problem Statement

Autism spectrum disorders (ASDs) are primarily defined by problems with social interaction and communication, but they are also associated with a complex cognitive profile. One area of difficulty for children and adults with ASD is problem-solving, or the process of identifying a solution to a puzzle or question where the answer is hidden. This can be seen on the Twenty Questions Task (TQT), a commonly-used measure of verbal problem-solving and executive functioning. Children with autism are consistently less efficient than typically-developing children in their questioning on the task: for instance, rather than ask a general, category-based question (e.g. “Is it a living thing?”) they may ask about single items (“Is it the dog?”) or very restricted groupings (“Is it something you wear on your feet?”). This has previously been interpreted as an example of a concept formation deficit in autism, deriving from underlying difficulties with complex and integrative information processing. However, success in problem solving relies on a number of cognitive and linguistic processes that may be impaired in ASD.

Both autism and deafness are associated with delays in early language development, whereas Asperger Syndrome (AS) is not. To test whether language delay explains autistic problem-solving difficulties, experiment 4 compares TQT performance in 15 children with autism, 15 AS children and 15 age- and IQ- matched typically-developing controls. Participants with autism asked less efficient questions than both AS and TD participants, between whom no differences were observed. This suggests that the problem-solving profile in autism may be better explained as a consequence of atypical language development, rather than other aspects of information processing or executive dysfunction.

Computerized Autism approach software is aimed at helping us approach this defect by integrating TQT with graphics ( pictures) to help autistic children relate real life.

## Justification

* Innovation – Uniqueness
* Benefits

## Purpose of the Project

## Objectives

Outline the expected outcomes

* + Developers level objectives – At least three

Example:

* + 1. To design
    2. To implement/coding
    3. To test
  + System level objectives – At least three

1. Map functional requirements onto the objectives
   * + Objective for input
     + Objective for processing
     + Objective for output

## Scope

* Domain
* Number of functionalities
* Time

## Significance

* Beneficiaries

## Deliverables

* Map deliverables to objectives

Examples

* System design document
* Test results
* Data capture
* Reports
* Process (Algorithm)

## System Requirements

**Functional requirements**

**Non-Functional requirement**

**Software Development tools**

* Open source
* Proprietary
* API

**Hardware**

* Show rationale for choosing that particular specification

**Programming Languages**

# Chapter Two: Literature Review (*Should be on a new page*)

* This is empirical literature review. Show the success and failure of similar (systems, algorithms, technology etc.)
* Functional and non-functional requirements should be captured in the literature review.

# Chapter Three: Methodology (*Should be on a new page*)

* Briefly describe the software development methodology you intend to follow in developing the proposed system project.
* You need to justify the relevance of your choice to the proposed project.
* Mapping of the methodology onto their project

# References (*Should be on a new page*)

* C Putman. And L. Chong software and technologies designed for people with autism: what do users want of assets 2008.
* Kimberly D. Becker • Bruce F. Chorpita • Eric L. Daleiden: Improvement in Symptoms Versus Functioning: How Do Our Best Treatments Measure Up? Adm Policy Ment Health. Published Online 05 Jan 2015.
* Schaubman, Averi et al: Reducing Teacher Stress by Implementing Collaborative Problem Solving in a School Setting. School Social Work Journal. Vol. 5. No. 2. March 2015.

# Appendices (*Should be on a new page*)

# **Schedule** (Project Plan) (*Should be on a new page*)

* Outline project plans – for both system selection and system implementation.
* Plans to show key activities, dates, and deliverables - Milestones and measurements / metrics of the outcomes

The schedule of the Computerized autism approach software comprises the following activities and their corresponding periods in the course of the study.

The various activities to be performed are:

* + 1. Requirement gathering
    2. Analysis and design of the system
    3. Coding and debugging
    4. Testing
    5. Analysis and interpretation of the results
    6. Documentation (Report writing)
    7. Submission of the final Report

# Budget

# Should be broken down and analyzed e.g. system selection phase, implementation phase, ongoing costs, total budget required, budgetary limits

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Sn** | **Required Item** | **Unit** | **Quantity** | **Unit Price** | **Total Price** |
| 3 | Compact disk (CD) | Each | 3 | 30 | **600** |
| 4 | Wireless modem | Each | 1 | 2,000 | **2,000** |
| 5 | Internet usage charge | Monthly | 6 | 2,000 | **12,000** |
| 6 | Jdk software |  |  |  | **Free** |
| 7 | NetBeans IDE 8.0 software |  |  |  | **Free** |
| 10 | Note book | Each | 2 | 300 | **100** |
| 12 | Reportprinting and binding | Each | 6 | 100 | **600** |
| **15** | **TOTAL COST** |  |  |  | **15,500** |

# SDLC Phases

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **ACTIVITY** | | **PERIOD: YEAR 2019/2020** | | | | | | | |
| **SN** | **ITEM** | **JAN** | | **FEB** | | **MAR** | | **APR** | |
| 1 | Requirement gathering |  |  |  |  |  |  |  |  |
| 2 | Analysis and design of the system |  |  |  |  |  |  |  |  |
| **3** | Coding and debugging |  |  |  |  |  |  |  |  |
| **4** | Testing |  |  |  |  |  |  |  |  |
| **5** | Analysis andinterpretation of result |  |  |  |  |  |  |  |  |
| **6** | Documentation |  |  |  |  |  |  |  |  |
| **7** | Submission of final report |  |  |  |  |  |  |  |  |