

# ANDROID APPLICATION FOR LOCATION TRACKING AND ALERT SYSTEM FOR AUTISTIC CHILDREN

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**Abstract:** The cognitive disorder caused due to abnormal functioning of brain impacting development activities is termed as Autism. There are different techniques that are used to communicate with disabled one. Now a day's so many smart phone applications are there to help autistic people. This paper says the usability issues of such applications designed for people suffering from ASD. In this paper two additional features have been added. One is to track the location of disabled child and other is the alert system. Whenever there is a emergency situation occurs child can send an alert to parent phone. Also the location of the disabled child can be tracked. The most smartphone application which support autistic children are paid ones. This app is free.

**Keywords:** Google map, Alert, Android 2.2, Expected Utility, Location Tracking, Notification.

## I. INTRODUCTION

Autism is characterized by difficulty in social interaction, communication and creative impairments. It is also called as pervasive development disorder. ASD is a set of disorders including autistic disorder, Ret syndrome, pervasive development disorder, and childhood disintegrative disorder and Asperger syndrome. Reason behind the cause of Autism still unknown. So many studies are conducting across the world to understand the real cause of this syndrome. The research shows that the rate of autism is common among boys with the ratio of 1 in 100 to 1 in 320 in girls. Autism affects the nervous system of humans. The cause of these problems with the central nervous system is unknown in most cases. Research studies shows that autism can be propagated from one generation to next. The environmental, immunologic, and metabolic factors also affect the development of the disorders. The proposed system would be based on the ANDROID technology to provide mobile based accessibility. The paper is divided into sections as follows. Section 2 is about Existing System, Section 3-Proposed Model & implementation details involving Android 2.2 with Google Maps API. Section 4 is conclusion and future work. And section 5 is acknowledgment.

## II. EXISTING SYSTEM

Talking about the existing system, currently we have different apps which are available in Google play store. This system is proposed to be a solution to the above mentioned problem. Most of the application are supported by IOS platform. Also most of those apps are paid ones. So it cannot be used by common people. The children suffering from autism feels difficulty in interacting with outside world. But

most of the existing applications are used to facilitate learning purpose. Some of them are

- \*Math Board
- \*My Play Home
- \*Proloquo2Go
- \*AAC Speech Buddy

## 2.1 COMPARATIVE ANALYSIS OF EXISTING APPS FOR AUTISM

There are so many android applications that are available in the market both in App Store and Google Play platforms. But problem with these applications are most of them are paid ones. It is not affordable for the common people. Most of the android applications are used for easing the learning capacity of the autistic child. The apps that support the communication are rarely launched. So it is very important to launch an android based application which can used to facilitate easy communication between the affected ones and the others. So that we have studied so many existing applications which support autistic children from different perspective. The User reviews for these apps are really adorable. By analysing these reviews and the needs of the users in this paper we propose a new design which helps in easy communication between the parent and the child. The apps that we have analysed for this study are both from iPhone and android domain. The iPhone app that are studied

### A. AutisMate

AutisMate is an android app supported by IOS. These are paid apps. Most of the features are aided for the learning and entertainment purposes. AutisMate also support the communication between the suffered one and parent. The user interface is given in fig-1.



Fig-1 Interface of AutisMate

**B. AAC Speech communicate**

AAC speech communicator is a pictogram-based application which supports autistic people to speech. It is basically a mode of communication that formulates grammatically correct sentences using a list of pictograms and reads them (text-to-speech). This app is one of the most rated app which is used by so many users. The user interface is given in fig-2.



Fig- 2 Interface of AAC Speech communicate

**III. PROPOSED MODEL**

The proposed model is supported by android 2.2 version. It is designs as a free application. In the proposed model there are two potential users, child and guardian. A registered parent can login in to the application using password and username. On the child part we have to register the name of child using random password. Whenever the child presses any icon in the home screen the alert is driven to parent phone. There is an option for parent they can easily locate the child current location. So that we can identify the dangerous situations. A service is running in both parents and child phone to update the current location. Flow chat of the system is given in fig-3.

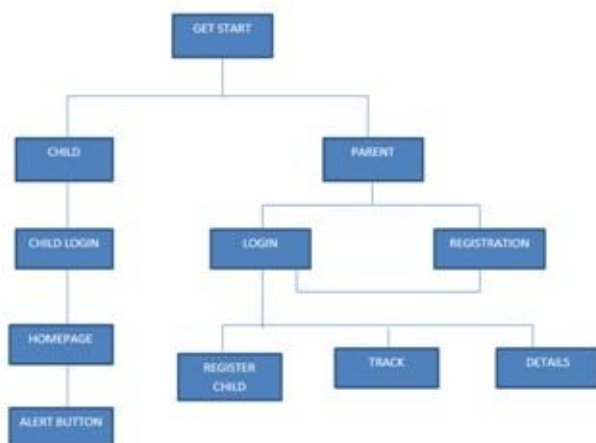


Fig-3 Flow Chart

**3.1 LOCATION TRACKING**

In this application parents can easily track the location of the child by using track child icon in the parent page. Whenever

the parent clicks on the track child option the current location of the children is fetched from the database and located in the parent’s map. This ensure a level of security to the child. Tracking system shown in fig-4.



Fig-4 Location Tracking

**3.2 ALERT SYSTEM**

An Alert System is implemented in this project. When the child s n an emergency condition an alert can be initiated from the child phone to parent phone. Different alert system is implemented in the system. They are Panic alert system, Food alert, Toilet alert, Sick alert etc. User Interface shown fig-5.



Fig-5 User Interface

When the child initiates an alert to the parent phone the corresponding alert is popped in the parents’ homepage. There is a call back option in the parent’s page. So that the parent can call back if it is an emergency situation. Alert notification shown by Fig-6.

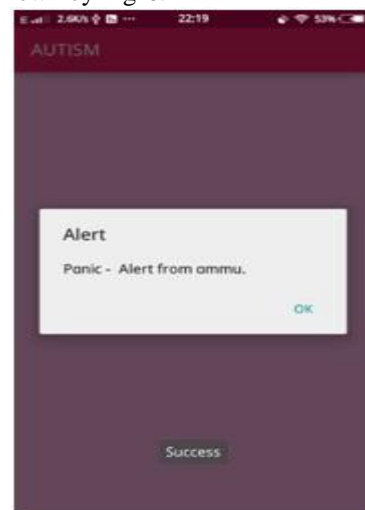


Fig-6. Alert

#### IV. CONCLUSION & FUTURE WORK

For my child is an app which support autistic children to communicate with their parent using an android based system. The current location of the children can be tracked. So in an emergency situation the parent can easily locate the children location using Google maps. Also an alert system is implemented so that an alert is initiated from child phone to parent phone under emergency situations. So this app is so useful and we can ensure more safety than other applications. In future this design can be enhanced by adding features which enables the autistic children to learn very easily. We can add video tutorials, games, entertainment videos etc.

#### V. ACKNOWLEDGEMENT

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#### REFERENCES

- [1] (November, 2012) What is Autism? [Online] Available: <http://www.autismspectrum.org.au/a2i1i112371113/what-is-autism.htm>
- [2] J. A. Kientz, G. R. Hayes, T. L. Westeyn, T. Starner and G. D. Abowd "Pervasive Computing and Autism: Assisting Caregivers of Children with special needs" IEEE on Pervasive Computing, Vol.6 Issue.1, pp. 28-35 Jan-March 2007.
- [3] E. Quintana, M. Tentori, J. Favela, C. Ibarra and L. Escobedo, "Object and Gesture Recognition to assist Children with Autism during the discrimination training" , Lecture Notes in Computer Science, Vol.7441, pp. 877-884, 2012.
- [4] S. H. Hirano, M. T. Yeganyan, G. Marcu, D. H. Nguyen, L. A. Boyd and G. R. Hayes "vSked: Evaluation of a system to support classroom activities for Children with Autism," Proceedings of the SIGCHI 28th International Conference on human Factors in Computing Systems, Atlanta, pp. 1633-1642, 2010.
- [5] M. Tentori, G. R. Hayes "Designing for interaction immediacy to enhance social skills of Children with Autism," Proceeding of 12th ACM International Conference on ubiquitous Computing, New York, pp. 5160, 2010.
- [6] L. Escobedo, D. H. Nguyen, L. Boyd, S. H. Hirano, A. Rangel, D. Garcia-Rosas, M. Tentori, G. R. Hayes, "MOSOCO: A mobile assistive tool to support children with Autism practicing social skills in real-life situations," Proceeding of 12th ACM International Conference on ubiquitous Computing, Austin, pp. 2589-2598, 2012.
- [7] (November, 2012) What is Autism? [Online] Available: <http://www.autismspeaks.org/> (November, 2012) What is Autism? [Online] Available:<http://www.autismspectrum.org.au/a2i1i112371113/what-is-autism.htm>