Project Mini-Report on

Android Learning-Based Application for Kids

Prepared By

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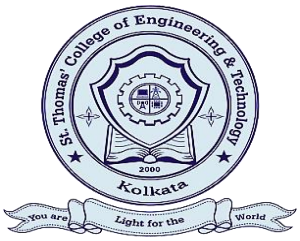


St. Thomas' College of Engineering & Technology

Affiliated to

Maulana Abul Kalam Azad University of Technology, West Bengal

Pre-amble

I.I Vision and Mission of the Institute

Vision of the Institute

To evolve as an industry oriented, research-based Institution for creative solutions in various engineering domains, with an ultimate objective of meeting technological challenges faced by the Nation and the Society

Mission of the Institute

- To enhance the quality of engineering education and delivery through accessible, comprehensive and research-oriented teaching-learning-assessment processes in the state-of-art environment.
- To create opportunities for students and faculty members to acquire professional knowledge and develop managerial, entrepreneurial and social attitudes with highly ethical and moral values.
- To satisfy the ever-changing needs of the nation with respect to evolution and absorption of sustainable and environment friendly technologies for effective creation of knowledge-based society in the global era.

I.II Vision and Mission of the Department

Vision of Computer Science and Engineering Department

To continually improve upon its teaching-learning process and research with a goal to develop technical manpower with sound academic backgrounds, who will respond to challenges and changes faced by dynamic scenario of Computer Science and Engineering.

Mission of Computer Science and Engineering Department

- To inspire the students to work with latest tools and to make them industry ready.
- To impart research based technical knowledge
- To groom the department as a learning centre to inculcate advancement of technology in Computer Science and Engineering with social and environmental awareness.

I.III Program Outcome (PO)

Engineering Graduates will be able to:

1. **Engineering knowledge**: Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineeringproblems.
2. **Problem analysis**: Identify, formulate, review research literature, and analyze complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences.
3. **Design/development of solutions**: Design solutions for complex engineering problems and design system components or processes that meet the specified needs with

appropriate consideration for the public health and safety, and the cultural, societal, and environmental considerations.

4. **Conduct investigations of complex problems**: Use research-based knowledge and research methods including design of experiments, analysis and interpretation of data, and synthesis of the information to provide valid conclusions.
5. **Modern tool usage**: Create, select, and apply appropriate techniques, resources, and modern engineering and IT tools including prediction and modeling to complex engineering activities with an understanding of the limitations.
6. **The engineer and society**: Apply reasoning informed by the contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to the professional engineering practice.
7. **Environment and sustainability**: Understand the impact of the professional engineering solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development.
8. **Ethics**: Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.
9. **Individual and team work**: Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.
10. **Communication**: Communicate effectively on complex engineering activities with the engineering community and with society at large, such as, being able to comprehend and write effective reports and design documentation, make effective presentations, and give and receive clearing structions.
11. **Project management and finance**: Demonstrate knowledge and understanding of the engineering and management principles and apply these to one's own work, as a member and leader in a team, to manage projects and in multidisciplinary environments.
12. **Life-long learning**: Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change.

I.IV Program Educational Objective (PEO) of Computer Science and Engineering

Graduates of Computer Science and Engineering shall

1. Have skills to solve the problems by analysis, design, develop and implementation of algorithms leading to optimal solutions fulfilling the dynamic requirement of industry and society.
2. Have good understanding of Computer Science and Engineering concepts, making them practicing engineers with sound knowledge of logic and design, in Industries.
3. Undertake research in emerging fields in Computer Science and Engineering so as to face the challenges of global competitiveness.

I.V Program Specific Outcome (PSO) of Computer Science and Engineering

PSO1 : Programming skills : Apply fundamental knowledge and programming aptitude to identify, design and solve real life problems.

PSO2 : Professional skills : Students shall understand, analyze, and develop software solutions to meet the requirements of industry and society.

PSO3 :Competency : Students will be competent for competitive examinations for employment, higher studies and research.

I.VI PO and PSO mapping with justification

Project	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO8	PO9	PO10	PO 11	PO 12	PSO1	PSO2	PSO3
CS794	**3**	**3**	**2**	**2**	**3**	**3**	**2**	**2**	**3**	**3**	**3**	**3**	**3**	**3**	**3**

Justification:

- **PO1:** Applied the knowledge of engineering fundamentals and engineering specialization to the solution of problems in this Project.
- **PO2:** Identified and formulated a solution to problems using engineering science.
- **PO3:** Designed system components, analysis and interpretation of data for this Project.
- **PO4:** May arise during implementation of the Project.
- **PO5:** Android Studio will be used for creating the apps.
- **PO6:** Helps children with learning disabilities and suffering from ASD
- **PO7:** Not Applicable.
- **PO8:** We shall follow professional ethics and not submit a version of this app made by someone else.
- **PO9:** Discussion in group and contribution at an individual level has helped to develop solutions for problems.
- **PO10:** Communication has been an effective way for completing the pre-implementation stage.
- **PO11:** The project has been designed keeping financial expense in mind.
- **PO12:** Android is one of the most updated OS in modern times. So, continuous learning is required.

- **PSO1:** The project may be successful in solving a real world problem i.e helping kids with ASD.
- **PSO2:** The requirements have been analyzed and an application has been designed for the same.
- **PSO3:** This project will help broaden the knowledge in the field of a modern technology thus increasing chances for employment and research.

1.Abstract

Autism spectrum disorder (ASD) is a complex neurodevelopmental disorder characterized by deficits in social communication and social interaction and by restricted, repetitive patterns of behavior, interests, or activities. Children diagnosed with autism have in common an impediment in social interaction. However, the severity of the impairments and behaviours differ respectively in each child. The importance of social skill development is critical. Such deficits may impede children's development and increase the risk of social withdrawal and isolation. Children who are socially withdrawn may be rejected by peers thus impeding social inclusion. Their isolation likely will affect their overall educational experience.

Children with ASD show a desire for friendships but remain at an increased risk of social problems in regular classroom settings. Additionally, children with ASD have been shown to be less accepted by peers and are viewed as less central members of their classroom social structure as compared to typical classmates. Lack of appropriate social skills has been identified as a critical component of education programming; the Individuals with Disabilities Education Act (IDEA) has stressed that educational goals for children with ASD should include the development of social skills. Social interaction skills focus on increasing the frequency of and competency in social interaction. Skills that may be taught can include initiating or responding to other students (verbally, physically, or gesturally), maintaining conversations, offering to help, asking and answering questions, requesting information from others, and interacting in games

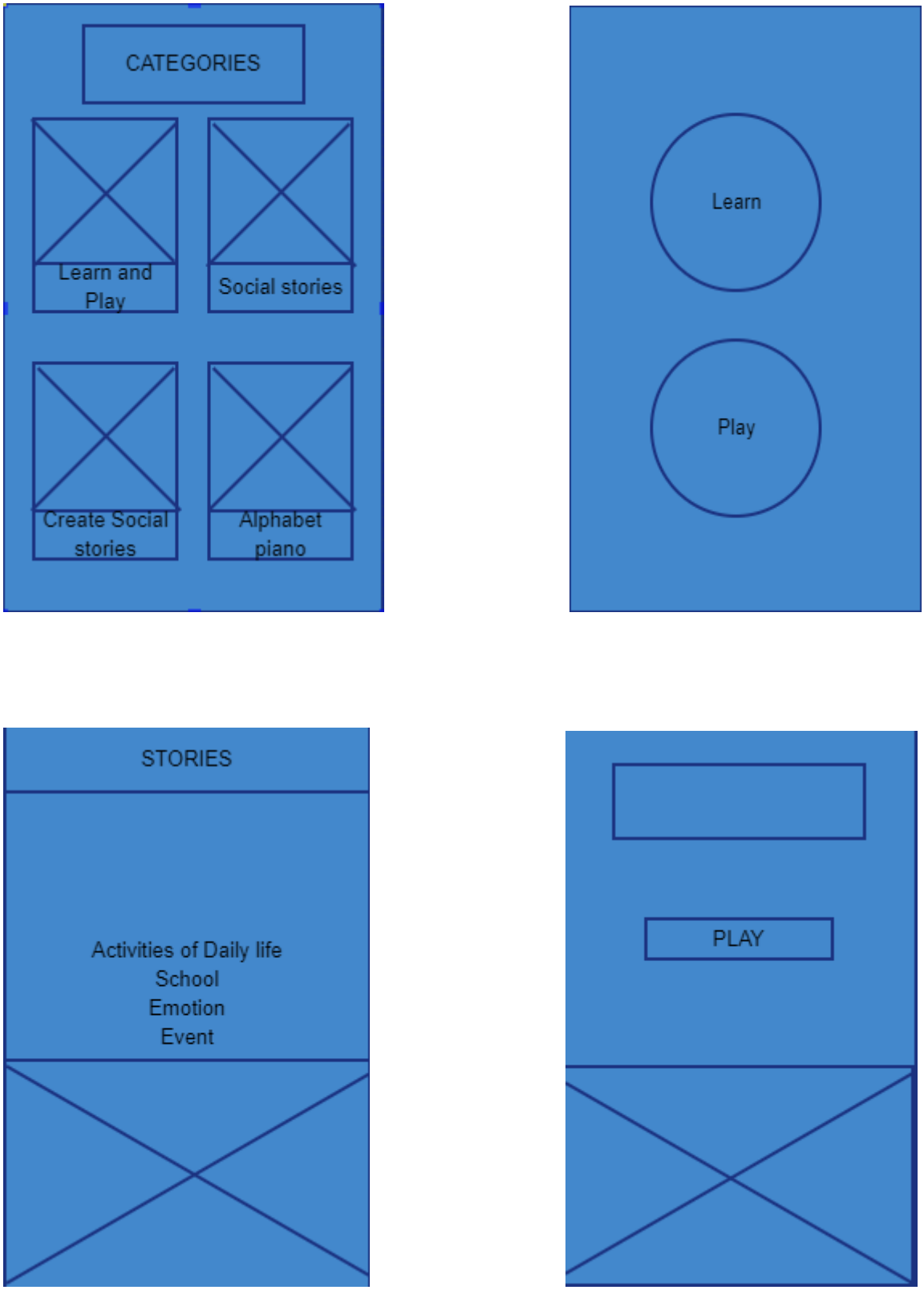
This Android Application, Social Stories, is a mobile based software application designed especially for individuals with ASD to learn social skills. This Android Application for Mentally Challenged Kids mainly focuses on Computer Based Learning (CBL) or Computer Aided Learning (CAL) through smartphones. The main objective is to share social skills and information in an individual with ASD (Autism Spectrum Disorder).

Social Stories is a tool to help individuals with ASD (Autistic Spectrum Disorder) better understand the nuances of interpersonal communication so that they could interact in an effective and appropriate manner. Social stories and comic strip conversations can help autistic people develop greater social understanding and stay safe. They are short descriptions of a particular situation, event or activity, which include specific information about what to expect in that situation and why. Social stories are individualized short stories that depict a social situation that a child affected by autism may encounter. These social stories are used to teach communal skills through the use of precise and sequential information about everyday events that a child may find difficult or confusing, thus preventing further anxiety on the part of the child.

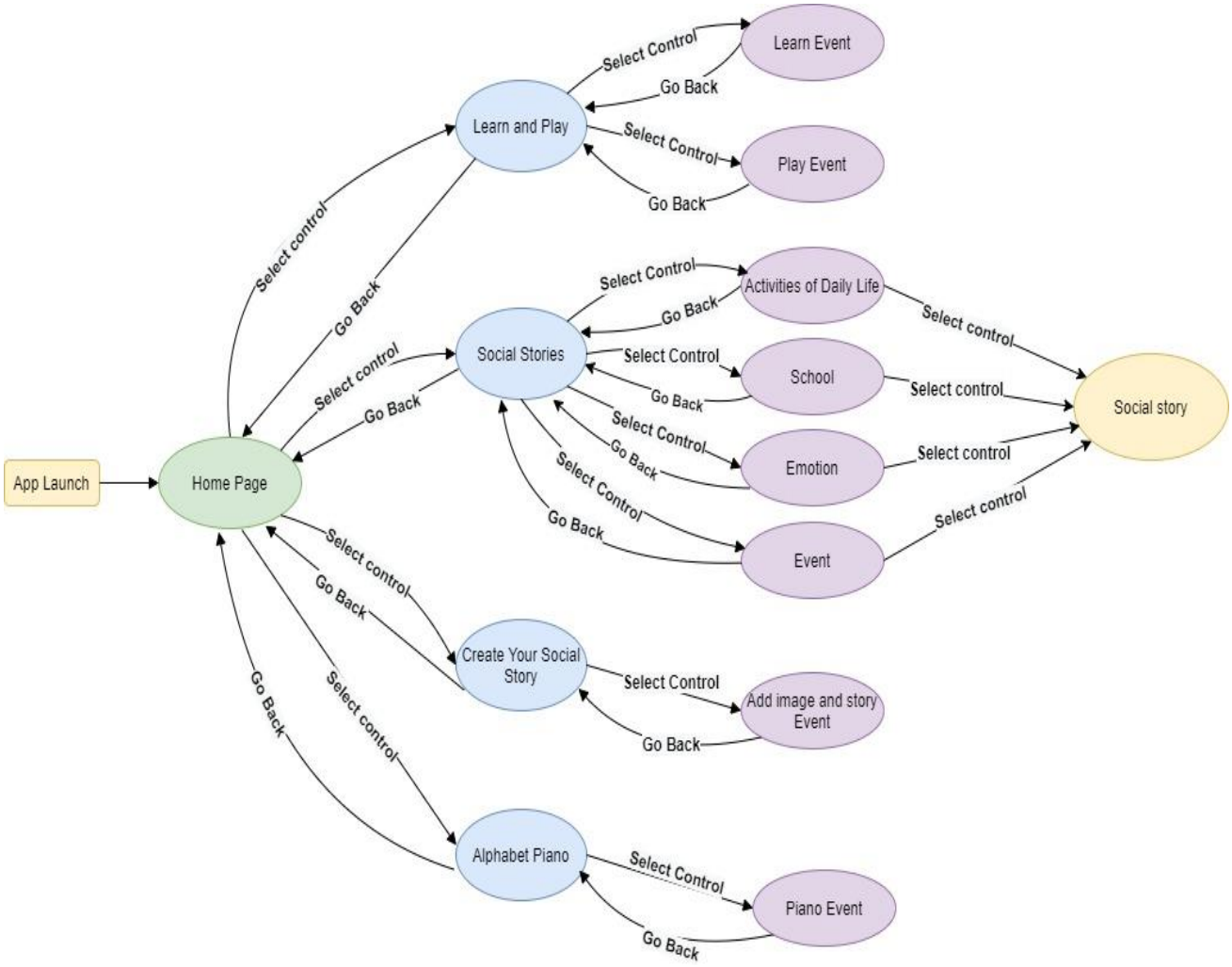
The software application is totally based on animation and interactivity. As far as the project is concerned, this software will help a child to learn social skills required in day to day life. As per this software application is concerned, this application is especially for individual with ASD to learn day to day social skills with the help of animation and pictures. As buying a personal computer is expensive our project provides a cheap software solution to problem. The application would very useful parents who want their children to develop socially.

Social Stories is an Android based application. It has been implemented with Android Studio and SDK manager. The application has easy to use main menu from which the rest of features can be accessed. The basic app consists of navigation menu and image slider view. The application is available for all android phones running Android OS 6.0(Marshmallow) and any later versions of the Android OS. The main programming used is Java. The application includes a dashboard for various modules like games, social stories etc. The user may choose from the given options so as to make the application more interesting to the user. The application choices are very simple for providing an extensive user friendly environment.

2.WireFrame Diagram and Work Flow Diagram

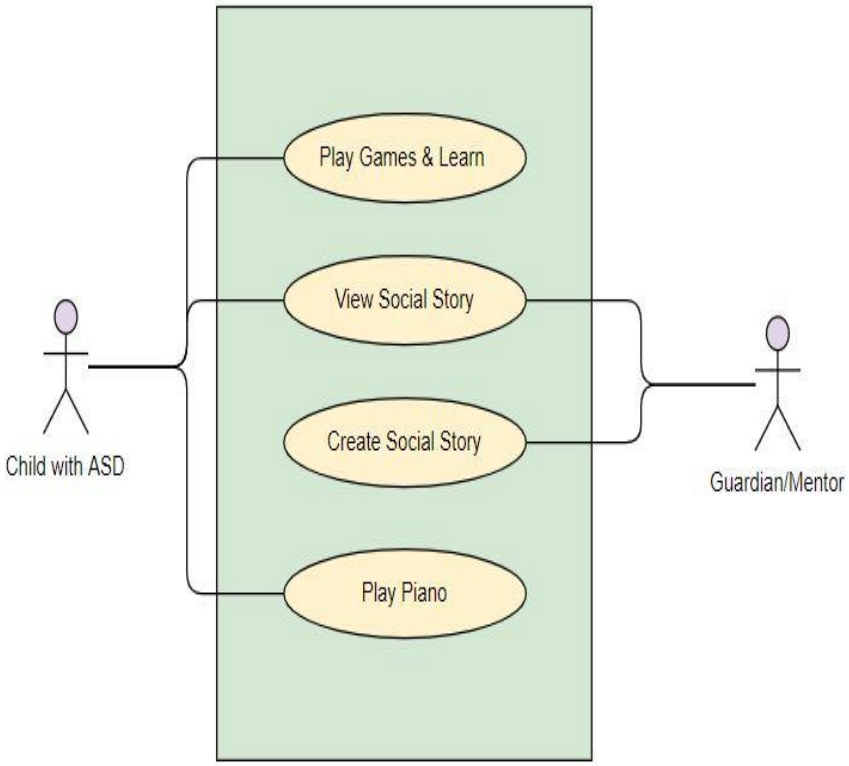


WireFrame Diagram (Screen Blue-Print)



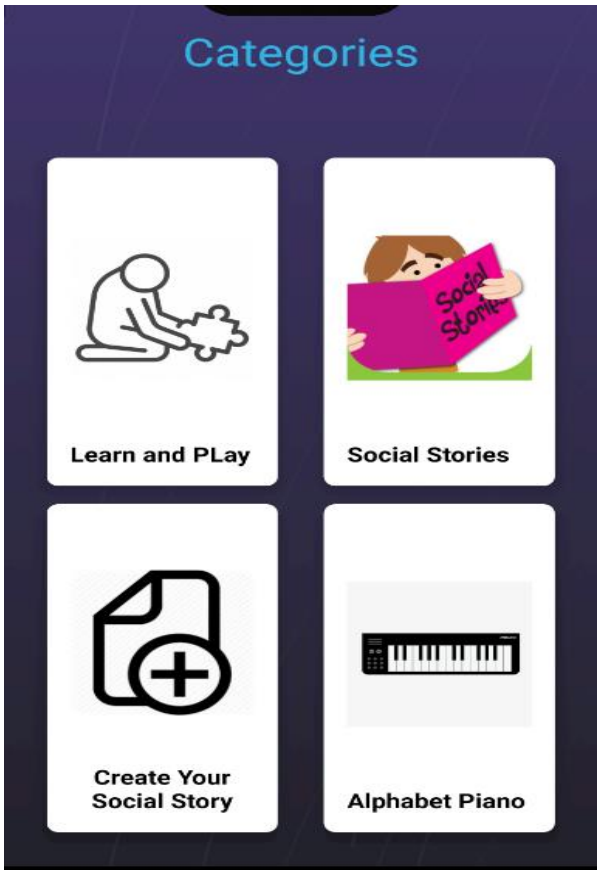
Work Flow Diagram

3.Use Case Diagram



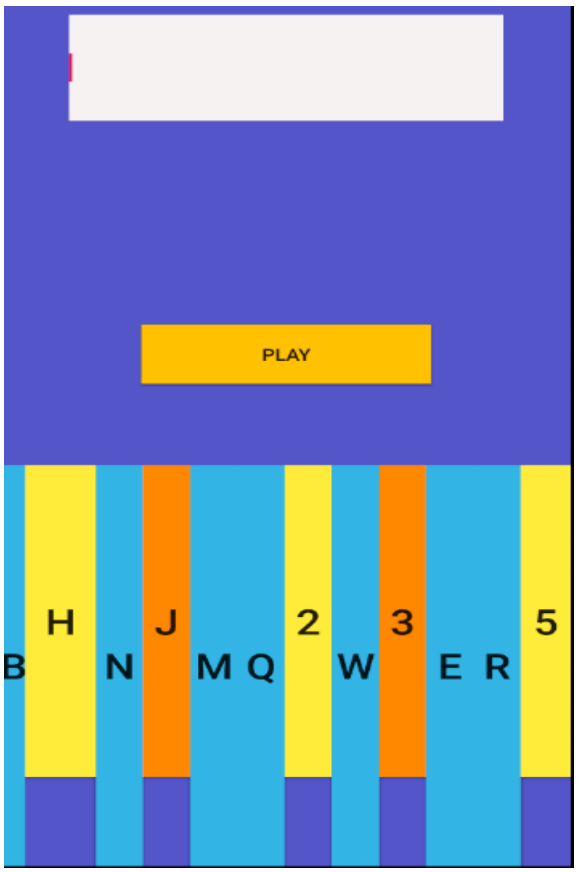
Use Case Diagram

4.Snapshots of Output from the Working Project




Lets Learn about Personal Space
READ OUT!


learn
PLAY


PLAY
B
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5

5.Contribution

Building of the project:

Priya Roy: The backend of social story and the implementation of text to speech to narrate out the story. The frontend of the alphabet piano and layout transition using intent in android studio. The backend of guessing game. Adding of social stories in the social story section of the application.

Rishab Prasad: The backend of alphabet Piano. Adding of social stories in the social story section of the application. Frontend of the guessing game. Integrating the different sections to the application.

Sangita Porey: Refinement of the constraint layout in the alphabet piano. Gathering of the social stories and editing the pictures to create social story. Front end of the social story application.

Mini Report:

Priya Roy: Creating the abstract, use case diagram and work flow of the application.

Rishab Prasad: Creating the wireframe diagram for the project and compiling contributions of each member.

Sangita Porey: Compilation of the document and making the rest of the document.

Powerpoint presentation:

Priya Roy: Gantt Chart, Use Case Diagram, End Users and compilation of the powerpoint.

Rishab Prasad: Workflow-diagram, Objective, Technology, and Screenshots of the project.

Sangita Porey: Introduction, Motivation, Conclusion and Future Scope