



INTRODUCING TIP TOE

Tip Toe is a set of multi sensory play tiles designed for children with visual impairment to help them play and learn with their peers while engaging in a multi sensory play activity.

UNSAFE

The moment the child steps on this part of the tile auditory buzzer gets activated indicating the wrong path.

The play tiles have been designed with two distinct textures (safe and unsafe as a part of the gameplay) for the child to observe and walk on. The circular area of the tile called the *safe texture* is defined for walking (tip toeing) while the remaining part of the tile *unsafe texture* is defined for auditory feedback.

GAMEPLAY

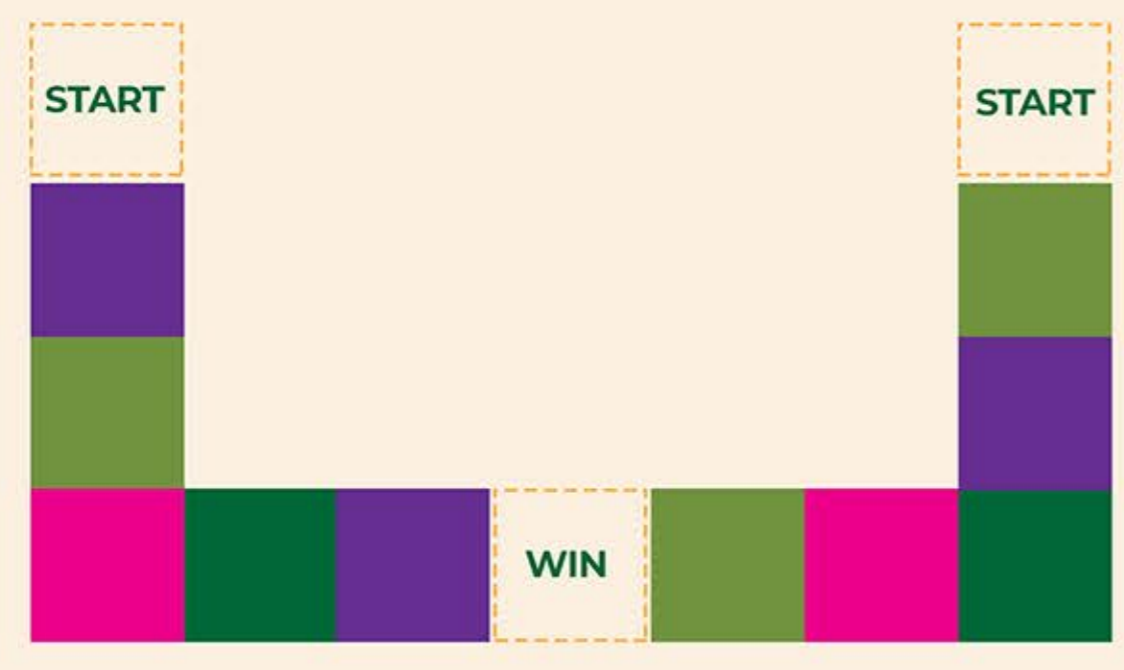
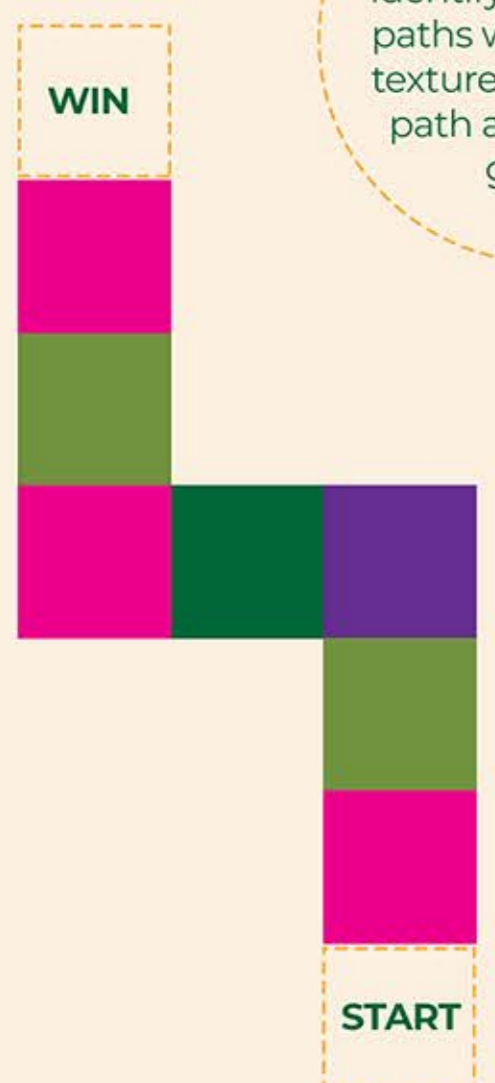
Everytime the child steps on the wrong (unsafe texture) the tile makes an indicative sound, activating it for sound feedback with the help of pressure sensor and an auditory buzzer installed inside it.

SAFE

The child needs to identify the circular paths with another texture to cross the path and win the game.

DIY GAMEPLAY

The playtiles can be used to create variable gameplays increasing the level of modularity and possibilities which help in retaining playability of the same equipment in multiple ways.



Example 1: Follow the path
The gameplay comprises of two to three players where one player tries to reach the end of the path following the circular paths of the tile while the other player tries to catch him moment he steps on the wrong part of the tile. Player who completes the given role first wins the round.

Example 2: Save Me!
The gameplay comprises of three players where two players are standing on each end and one at the centre. Both the players race towards the centre player, walking over the safe textures. Player that reaches the centre first wins the round.

KEY FEATURES

- Social Interaction**: Engages child in vital social skills like initiating a conversation with their peers.
- Sensory Play**: Helps in enhancing the tactile and auditory perception of the child.
- Body Movement**: As a part of the gameplay the child starts to develop a personal language to walk.
- Directional Sense**: The child becomes conscious of steps taken in each direction while stepping on each tile.
- Spatial Cognition**: When a child reaches the correct tile he develops a sense to understand space.

FINAL PRODUCT



HOW can play help children with visual impairment ?

For a child who is partially sighted or blind; physical, mental, social and emotional growth are significantly impacted while growing up. Play can be useful in the development and growth of these children significantly and can help in overcoming their development delays.

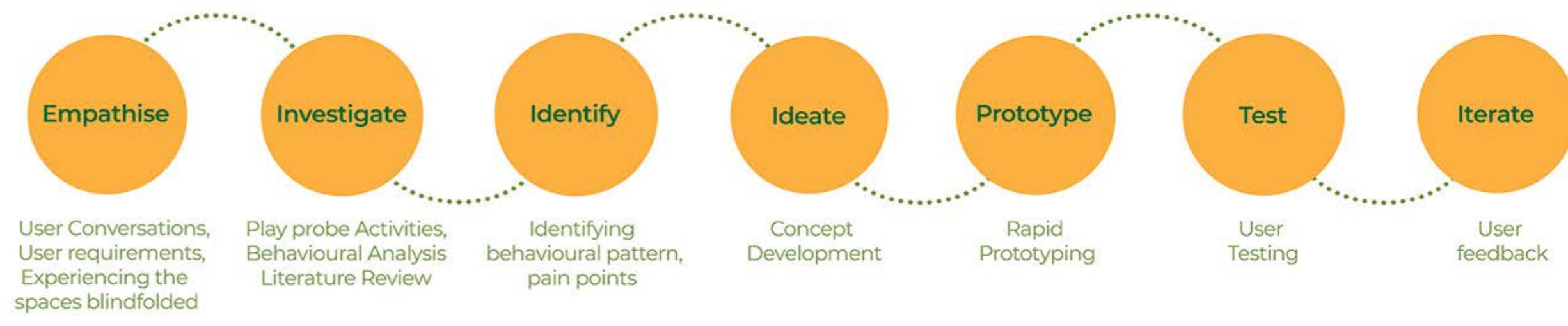
Current Play scenario for Visually Impaired Children in India



NEED for play equipment for children with Special Needs

- Most toys available in the market are **not designed as per the needs** of special children
- Existing games like Ludo and Snakes & Ladders are simply **adapted** to make it accessible to special children
- Most of the population does not consider toys or games as a necessity and hence would not buy play equipments that are **more than the standards of affordability**
- There are **no toys that encourage physical activity and group play** for special needs children.
- Most of the play equipments are designed for indoor settings **limiting them to individual play**.
- Toys **lack replayability**, making it boring for the child to play the with same equipment again.

DESIGN PROCESS



How do children Learn ?

A Montessori approach based on **learning through the senses**

Sensory stimulation is a way for a blind child to make the sense of the world.



RESEARCH METHODS

Using Social Probes to Understand Play Behaviour

ACTIVITY 1 Conducted at NID Gandhinagar 15 Interviews SENSORY PLAY MEMORIES FROM CHILDHOOD Understanding sensory preferences of people around me.	What are your favourite smells from your childhood ? 1. Food 2. Environmental 3. Object 4. Human <i>(Based on the order of preference as per the survey)</i>	What are your favourite sounds from your childhood ? 1. Bells 2. Human voices 3. Environmental 4. Electronic	What are your favourite taste from your childhood ? 1. Sweet 2. Sour 3. Spicy 4. Sensation inducing	What is your favourite touch from your childhood ? 1. Soft 2. Environmental 3. Object/Material 4. Human	RESULTS This activity comprised of understanding sensory preferences in typical population which led to identification of some dominant categories corresponding to each of the senses, which helped in designing play probe for Activity 2.
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ACTIVITY 2 Conducted at Sab Sanchalit Blind School 8 Interviews (age 6-12 years) SENSORY PLAY BEHAVIOUR Understanding the user group and their sensory behaviour, their memories in relation to different senses.	Tactile play probe activity Variety of textures used : Rollers, Sand, Pom Poms, Plastic animal toys nylon cloth, scrub pad cleaning brush	Auditory play probe activity Variety of auditory stimuli: Bells, whistle, sandbox, ghongroo	Taste+Smell play probe activity Variety of taste and smell stimuli : Sweet, Salted Chips, Mint, Sourbelt, Chocolate, candy	RESULTS This activity comprised of giving various sensory stimuli to the user group asking them to guess the object, share a memory related to it. The insights from the activity were useful in guiding the process of idea generation.
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ACTIVITY 3 Conducted at Sab Sanchalit Blind School 11 interviews (age 6-12 years) SENSORY PLAY AND MOVEMENT Understanding the sensory behaviour of the users in relation to the environment.	Choosing the textures Texture tiles using materials like coconut husk, foamsheet, cotton, jute, textured paper, bubble wrap	Identifying the textures with touch Touching and trying to understand the comfort with texture and size of the tile.	Identifying the textures by walking Guessing the texture through touch using feet.	RESULTS This activity comprised of assessing sensory play behaviour of the children with respect to movement and spatial perception by using texture and sound stimulation activities.
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PROTOTYPE AND USER TESTING



- Children with partial vision are able to distinguish between the colours getting an advantage in the gameplay.
- Several circular areas makes the gameplay too easy.

FUTURE OF THE PROJECT

- To integrate inclusivity in the gameplay.
- To introduce a sustainable, make-it-yourself method for the play tiles to make it easy to afford for indian audience.



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