

2023/12308  
23/08/2023

## ਦਫਤਰ ਡਿਪਟੀ ਕਮਿਸ਼ਨਰ, ਮਾਨਸਾ

(ਫੁਟਕਲ ਸਾਖਾ-1)

ਸੀ/1  
2  
3/1

ਸੇਵਾ ਵਿਖੇ

ਜ਼ਿਲ੍ਹਾ ਸਿੱਖਿਆ ਅਫਸਰ (ਸੇ.ਸਿ/ਐ.ਸਿ).

ਮਾਨਸਾ।

ਪੱਤਰ ਨੰਬਰ: 11948 ਫਸ-1/ਫਕ-3

ਮਿਤੀ: 31/08/2023

ਵਿਸ਼ਾ: India's first Braille Smart Class for visually impaired children- A  
NITI Ayog recommended intervention.

ਉਪਰੋਕਤ ਵਿਸ਼ੇ ਦੇ ਸਬੰਧ ਵਿੱਚ ਐਸੋਸੀਏਟ ਡਾਇਰੈਕਟਰ, ਬਿੰਕਰਬੈਲ ਲੇਬਲ, ਬੰਗਲੌਰ  
ਵੱਲੋਂ ਪ੍ਰਾਪਤ ਹੋਏ ਪੱਤਰ ਮਿਤੀ 10 ਜੁਲਾਈ 2023 ਦੀ ਕਾਪੀ ਆਪ ਪਾਸ ਅਗਲੀ ਲੇਤੀਂਦੀ ਕਾਰਵਾਈ ਹਿੱਤ  
ਭੇਜੀ ਜਾਂਦੀ ਹੈ।

ਨੋਟ: ਉਕਤ ਅਨੁਸਾਰ।

  
ਵਾ: ਡਿਪਟੀ ਕਮਿਸ਼ਨਰ,  
ਮਾਨਸਾ।

ਕਾਨੂੰਨੀ ਵਿਸ਼ੇਸ਼ਤਾ: ਸਮਾਜ ਦੇ ਨਿਯਮਾਂ  
ਸੀ/1, 1 2023/2308 ਫਸ-1 23.08.2023

ਉਪਰੋਕਤ 2 ਵਿਸ਼ੇਸ਼ਤਾ ਸਮਾਜ ਦੇ ਨਿਯਮਾਂ ਦੇ ਹੇਠਾਂ ਨਿਯਮ  
ਜ਼ਰੂਰੀ ਤਰ੍ਹਾਂ ਕਿ ਵਿਸ਼ੇਸ਼ਤਾ ਸਮਾਜ ਦੇ ਨਿਯਮਾਂ ਦੇ ਹੇਠਾਂ  
ਦਿਖਾਈ ਦੇਵੇ।

ਸਹੀ ਕੀਤਾ ਸਮਾਜ

  
ਕਮਿਸ਼ਨਰ ਮਾਨਸਾ  
ਮਾਨਸਾ



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July 10th, 2023

To,  
The Deputy Commissioner

**Sub: India's first Braille Smart Class for visually impaired children - A NITI Aayog recommended intervention**

Respected Sir/Ma'am,

I am Pankaj Jadhav, Associate Director at Thinkerbell Labs - a **National Startup Award-winning** company. Our Made-in-India technology, Annie, is the world's **first and only remote enabled self-learning**, comprehensive braille literacy solution that helps the visually impaired learn to **read, write and type** in Braille.

- We have so far set up Annie Braille Smart Classes in over **80** schools and institutions across **18** states in India, impacting over **3000** learners.
- Our Braille Smart Class set up in the Aspirational District of Ranchi was **applauded by Hon'ble Prime Minister Shri Narendra Modi**.
- Annie has received recognition from **NIVH, NITI Ayog (recommended intervention), UNDP (best practice) and TIME (Best Invention of 2022, Accessibility category)** among others.
- **Polly**, the **US variant of Annie**, had a **successful nationwide launch** and our first batch was **sold out within one week**. All visually impaired children **across 50 states** of the US will now learn Braille with a **Made-in-India technology** through the support of the **US federal government**.

We would like to partner with your department in setting up Braille Smart Classes in **schools and block resource centers** in your district. With your support, this project will significantly increase the **Braille literacy rate in India** and would provide every visually impaired student with access to the **highest quality of foundational education**. Please reach out to me on **+91 8788280112** or at **partnerships@thinkerbelllabs.com** to discuss this further.

Yours sincerely,

Pankaj Jadhav  
Associate Director  
Thinkerbell Labs

Encl

1. Annie Smart Class Brochure
2. Aspirational District Projects
3. Letter from Dr. Rajiv Kumar, Vice-Chairman of NITI Aayog
4. Annie Evaluation Report by NIEPVD
5. Letter from Shri Rai Mahimapat Ray, District Collector Ranchi

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14/7/23



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20/7/23

**70+**  
Annie  
Smart Classrooms

**10+**  
Annie  
Resource Centres

**18+**  
Indian States



# 70+ Partners



## Testimonials

"In the district of Ranchi, lives of visually impaired children are being improved with the braille smart class!"

SHRI NARENDRA MOOI  
HONORABLE PRIME MINISTER OF INDIA

"It is very interesting to play & to learn reading, writing & typing on Annie. It helps me to know more about Braille."

JEEVKA  
BRAILLE LEARNER, JYOTI SEVA HOME FOR THE BLIND, ASC BY SELCO FOUNDATION, BANGALORE

"The kids are loving it. As teachers, we are able to supervise many kids at the same time & great support by Thinkerbell Labs team to ensure smooth functioning."

MR. RAUVISH KUMAR  
HEADMASTER, RAJYAKRITI NETRAHIN MADHYA VIDHYALAYA, RANCHI

"As a blind parent myself, I just want to compliment that Annie does an excellent job of integrating & mixing fun & educational concept of gamifying things for the student."

GREG STILSON  
HEAD OF GLOBAL TECHNOLOGY INNOVATION, AMERICAN PRINTING HOUSE FOR THE BLIND

## Featured On

GOV.UK THE HINDU VEDANT Go for Startups & FINANCIAL EXPRESS  
TEDx THE TIMES OF INDIA BUSINESSWORLD Bloomberg | Quora Inc.



# Annie®

Thinkerbell  
Labs

India's First Smart Class Solution & Resource Centre for  
Children with Visual Impairment

Recommended & Recognised By

tor tupa dpa

2022

all good

2022

TIME

2022

MIT

SOLVE

2022

CSIR

TIME Best Invention of 2022

Enabling UN Sustainable Development  
Goals through Innovative Solutions

Quality  
Education



Decent Work  
& Economic  
Growth



Reduced  
Inequalities



17  
Sustainable  
Development  
GOALS



4000+ Students Impacted



### Existing Projects implemented in Aspirational Districts

Name of the State	Name of the district	Name of the project	Funds utilized	Language	Unique features of the project
Jharkhand	Ranchi	Annie Smart Class (ASC) in government blind school	CSR	English + Hindi	Hon'ble PM appreciated the first Braille smart of Ranchi and in turn India.  Received a letter of recommendation from DC Ranchi
Jharkhand	Ranchi	Annie Smart Class in govt aided school	CCL CSR	English + Hindi	Our initiative is set to make a direct impact on 100 students as it is being implemented in one of the largest special schools in Ranchi.
Jharkhand	Latehar	Annie Resource Centers (ARC)	Special Central Assistance fund (SCA)	English + Hindi	Latehar will become India's first 100 % Braille literate district (for enrolled students)
Jharkhand	Giridih	Annie Smart Class	Inclusive Education funds (5%) under SSA	English + Hindi	Project benefited students in one of the LWE affected districts
Chhattisgarh	Kanker	Annie Smart Class	CSR	English + Hindi	
Bihar	Sitamarhi	ASC + ARC	Inclusive Education funds (5%) under SSA	English + Hindi	Implemented specifically for girls from Kasturba Balika Vidyalaya which is a girls only high school
Bihar	Banka	Annie Smart Class	Inclusive Education funds (5%) under SSA	English + Hindi	Implemented specifically for girls from Kasturba Balika Vidyalaya which is a girls only high school
Odisha	Kalahandi	Annie Smart Class	PGCIL CSR	English + Hindi	
Odisha	Koraput	Annie Smart Class	Special Central Assistance fund (SCA)	English + Hindi	

राय महिमापत रे, मा.प्र.से.  
Rai Mahimapat Ray, I.A.S.



उपायुक्त -सह- जिला दण्डाधिकारी,  
राँची, झारखण्ड  
DEPUTY COMMISSIONER, COLLECTOR  
& DISTRICT MAGISTRATE,  
RANCHI, JHARKHAND

Appreciation Letter

In its pursuit of increasing accessibility and quality of education to marginalised sections of students in Ranchi, the District Administration, Ranchi has been proactive in devising measures to address educational gaps in visually impaired children. Insufficiency of human resources, and stagnation in adopted pedagogy have emerged as roadblocks leading to abysmally poor Braille literacy levels, currently standing at less than 1%.

In this context, the District Administration, through the District Innovation Fund, has collaborated with Thinkerbell Labs - a BITS Pilani startup, to adopt usage of Annie - a device that enables the students to learn braille on their own and reduces dependence on special educators. Usage of the same in the Government School for the Visually Impaired, has led to demonstrable improvement in learning outcomes and holistic development of the students. The uniqueness of Annie lies in the individualised attention and interactive feedback mechanism provided to every student, without the need for increased human resources.

Since its implementation in July 2018, the project has received several accolades and has been recognised as a best practice by NITI Aayog. It was recently appreciated by the Hon'ble Prime Minister of India at the Plenary Meeting of NITI Aayog for its innovation in improving access to quality education under the Transformation of Aspirational Districts Programme.

I wish the team at Thinkerbell Labs success in establishing Annie Smart Class solutions in other districts across the country and hope to see more visually impaired students benefit from this innovation.

*K. Ray* 09/July/2019

(Rai Mahimapat Ray)



I 3088 2019

DR. राजीव कुमार  
उपाध्यक्ष  
DR. RAJIV KUMAR  
VICE CHAIRMAN

Phones: 23096677 23096688  
Fax: 23096699  
E-mail: vch-niti@gov.in



भारत सरकार  
नीति आयोग, संसद मार्ग  
नई दिल्ली-110 001  
Government of India  
NATIONAL INSTITUTE FOR TRANSFORMING INDIA  
NITI Aayog, Parliament Street  
New Delhi-110 001

14<sup>th</sup> June, 2019

Dear Shri Gehlot,

**Sub: 'Annie'- India's first self-learning Braille Device**

As you are aware, India has an estimated 15 million people with visual impairment, one-third of the world's population of the visually impaired. Further, it is a key priority of the Government to empower the visually impaired, which is also in line with the Sustainable Development Goals 4 & 10 aimed at imparting quality education and reducing inequality, respectively.

Ranchi District Administration in Jharkhand has taken an important step towards improving Braille Literacy through the introduction of 'Annie'- India's first self-learning Braille literacy device for the visually impaired. The device is developed by 'Thinkerbell Labs', an Indian start-up based out of Bengaluru, and is based on latest digital technology (brief write-up enclosed).

You may like to get the device evaluated at your end and subsequently advice State governments to implement similar solutions for the visually impaired in Government schools. The implementers can seek more information about Annie on <https://thinkerbelllabs.com/annie> or reach out to 'Thinkerbell Labs' at [partnerships@thinkerbelllabs.com](mailto:partnerships@thinkerbelllabs.com) for any clarifications and technical support.

Best regards,

Yours sincerely,

Rajiv

(Rajiv Kumar)

Encl: As above

Shri Thaawarchand Gehlot,  
Minister for Social Justice and Empowerment,  
Shastri Bhawan,  
New Delhi.



### **"Annie – The India's first Braille literacy device for the visually impaired"**

Braille literacy rate in India is less than one percent. This is due to the pedagogy of braille itself which requires the constant presence of a teacher and absence of interactive content. The acute shortage of special educators compounds the problem further with most funding going towards special education & training needs.

To achieve the goal of an inclusive education machinery in the country, Ranchi District Administration reached out to Tinkerbelle Labs, a BITS-Pilani Start-up that has developed "Annie – India's first Braille literacy device for the visually impaired". A smart classroom was installed for the first time in India at Ranchi at the Government Blind School at Harmu in Ranchi District in July 2018 through The District Innovation Fund.



Annie device enables students with visual impairment to self-learn Braille in a fun and involving manner. It is a patent pending device which has hardware modules tailored to teach Braille in both English and Hindi languages along with pre-loaded interactive content designed by curriculum experts and teachers. There is also a software ecosystem around Annie which allows for tracking of student progress (analytics) and downloading new content on to the device. The Annie learning ecosystem leads to a multiplier impact on the problem by allowing one special educator to teach and monitor multiple students at the same time.

#### **How does the device work?**

a) Annie is a standalone device. Once switched on, human-voiced audio guides the user through interactive learning content such as lessons, games, exercises etc. The content has been tailor-made in Hindi incorporating local folk tales and content to better involve the students.



b) The user follows Annie's instructions via the earphone jack or the speakers and proceeds along with the interactive adaptive content to learn Braille by themselves at their own pace.

c) Input from the user is taken via the ergonomic Braille keys (for typing) and a uniquely developed digital Braille slate (for writing). There are two refreshable Braille displays (for reading), one that showcase the letters with

larger dots for beginners and one standard sized dots for words to be read simultaneously.

d) The user gets instant corrective feedback when they enter an answer. The user doesn't need to depend on availability of teacher's personal time to correct mistakes.



e) Annie is a universal, region-agnostic device. The user can learn Braille of any language in any medium of instruction. Once the user learns to read, write, and type Braille on Annie, they can read, write, type Braille on any standard instrument in the world.

f) Teachers can control content on their student's Annie. Similar to a sighted classroom with a blackboard, one teacher can supervise all children with Annies in a class at the same time instead of relying on individual attention. Without Annie, a teacher can teach only one student at a time. With Annie, a teacher can teach an entire class full of visually impaired students.

g) Annie is a connected device. All of the user's data is continuously monitored, analysed, and visualised on dashboards that help teachers & other stakeholders (such as parents) track performance and usage of the user. The user can also access and download fresh content into Annie.

Leveraging technology and implementation of innovative technologies for serving the targeted beneficiaries can be successful if the technology can adapt itself to the local needs of the beneficiaries and this programme implemented by the Ranchi District Administration has shown an amazing symbiosis with the students of the Government Blind School.



#### **Outcomes generated:**

Since the installation of the devices, there has been a sharp increase in the Braille Learning Outcomes of the students in the school. The metrics of usage of the devices by the students have been recorded to better target the learning outcomes.

Since the installation, a total of 154 days of usage has been recorded by 24 users in the school which has a total student strength of 35 blind children. A total of 985 sessions of student activity has been recorded since July which amounts to 6 hours of daily usage by the children with an average session lasting more than 30 minutes. A total of 485 hours of content has been delivered to each user.

The increase in learning outcomes can be attributed to the success of the installed devices as reading and typing have been delivered 1083 times by each student since deployment and writing proficiency related lessons have been delivered 239 times since deployment. Vocabulary building exercises in Hindi and English (dictation tests) of varying degrees of difficulty and competitive Braille proficiency building game were also developed as new content packs. The introduction of the games has seen tremendous response and a huge increase in engagement with the device. This directly helps develop their Braille reading and typing speed, accuracy, along with vocabulary.

#### **Contact details & support:**

For further information on Annie, implementers may visit <https://thinkerbelllabs.com/annie>. They can also reach out to the District Social Welfare Officer Ranchi (+91-9471757045) & Mr. Pranjal (+91-7800288280) for implementation support and Mr. Dilip, Thinkerbell Labs ([partnerships@thinkerbelllabs.com](mailto:partnerships@thinkerbelllabs.com)) for technical support.



राष्ट्रीय दृष्टि दिव्यांगजन सशक्तिकरण संस्थान, देहरादून  
NATIONAL INSTITUTE FOR THE EMPOWERMENT OF PERSONS  
WITH VISUAL DISABILITIES (DIVYANGJAN), DEHRADUN  
दिव्यांगजन सशक्तिकरण विभाग, सामाजिक न्याय एवं अधिकारिता विभाग, भारत सरकार।  
Department of Empowerment of Persons with Disabilities, Divyangjan  
(Ministry of Social Justice & Empowerment, Govt. of India)

No. 2-1/2019-D

Dated 19.08.2019

To,

Sri Sanjay Singh,  
Under Secretary to the Govt. of India,  
Department of Empowerment of Persons the Disabilities,  
Ministry of Social Justice & Empowerment,  
5<sup>th</sup> Floor, B Wing, Paryavaran Bhawan,  
CGO Complex, Lodhi Road,  
New Delhi- 110 002

**Sub: Evaluation of the "Annie" the self learning Braille literacy device -reg.**

Sir,

Please refer to your letter No. 28-3/2018-Nis dated 26.07.2019 on the subject cited. As desired, the evaluation of the device "Annie" has been done by a team of expert in consultation with Thinkerbell Labs, Bengaluru and the report is submitted herewith for your kind perusal, please.

Yours faithfully

(Kamalbir Singh Jaggi)  
Coordinator, Special Education  
Director incharge

Encl. As above.

आप: भारत सरकार, देहरादून नगर निगम, उत्तरांचल  
115, Rajpur Road, Dehradun-248 001 Uttarakhand

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Director Office: 0135-2743144

Purchase: 0135-2743144  
R&D: 0135-2743144  
Mob: 0135-2743144

Lab: 0135-2743144  
Shakti Bhawan: 0135-2743144  
NIA & Central Board of Sec: 0135-2743144

Placement & Adm: 0135-2743144  
0135-2743144  
0135-2743144

## **Evaluation Report on Annie, the Braille device developed and designed by Thinkerbell Labs**

The device was tried and tested with the school students at NIEPVD; D. Dun a couple of years back and necessary feedback was accordingly given to the team that had conducted the tests. Subsequently, a modified device developed by Thinkerbell was again brought to the Institute in July, 2019. 10 Braille Experts were gathered together for a thorough field test of its utility as per list enclosed at **Annexure 'I'**. The group comprised one Retired Professor, two experts from Department of Special Education and Research, one Computer Instructor and a few students perusing B.Ed. Special Education (VI) in the Institute. The field survey report is enclosed herewith for reference.

The device appears to be very useful bearing in mind the fact that education has become technology based in this new world of smart class. The concept of smart class has not so far been introduced for the education of visually impaired and the idea seems to be quite feasible to implement for enhancing technology-based Braille literacy among visually impaired youngsters at the primary level. The device makes Braille reading, writing and typing possible -all intact in a single device. It may be worth mentioning here that Braille reading and writing is possible in other RBD's also, but Annie has an additional feature - it makes provision for writing Braille with the help of stylus in the Braille cell designed within the device. Besides, the device has a number of tutorials which will help the teachers and students to learn Braille and make immediate corrections. The device also supports some other Indian languages apart from Hindi and English.

As stated above, the device may well be introduced for a smart class, though it is going to be quite exorbitant for an individual to afford. In such a case the Government or Philanthropist will have to sponsor the device for schools /individuals. Moreover the teachers expected to introduce the device in their classes will have to undergo some training so as to familiarize themselves with all the features of the device. To conclude, the visually impaired Braille learners may be given an opportunity to break away from the traditional devices for learning Braille.



## ANNEXURE - 'I'

## LIST OF EXPERTS

Sl. No.	Name of the Expert	Designation of the Expert	Mobile No.
1.	Prof. S. R. Mittal	Adjunct Professor	9911166127
2.	Shri Kamalbir Singh Jaggi	Coordinator, Special Education	9811370365
3.	Shri R. P. Singh,	Assistant Professor	9410173808
4.	Shri Rajendra Singh Negi	ATIT Educator	8394029822
5.	Shri Sagar,	B. Ed. (V.I) Student	7010962652
6.	Shri Hemraj	B. Ed. (V.I) Student	
7.	Shri Sandeep	B. Ed. (V.I) Student	
8.	Shri Gopal	B. Ed. (V.I) Student	
9.	Shri Satish	B. Ed. (V.I) Student	
10.	Shri Ratnesh Kumar	B. Ed. (V.I) Student	

True, Jul 16, 2019 at 11:16 AM

To: [jacob@wellspring.com](mailto:jacob@wellspring.com), [nuradine@pearl.com](mailto:nuradine@pearl.com), Partnerships at The World's Partiers ([parties.wglobeballads.com](http://parties.wglobeballads.com))

I would like to convey my heartfelt gratitude towards NIEPVD for encouraging us and giving us expert feedback on Annie's features and the way ahead. To give you a quick recap, I am Aman Srivastava, COO & Director of Thinkerbel Labs - a Startup India recognised company by BITS Pilani alumni. We have created the country's first smart-class solution for the visually impaired that promotes self-learning and monitoring for early stage literacy. Our made in India product, Annie, is the world's first Braille literacy device that helps the visually impaired student learn to read, write and type in Braille on their own.

As a result of the success of the intervention, the Vice Chairman of NITI Aayog, Dr. Rajiv Kumar, sent the attached recommendation letter to the Minister of Social Justice to replicate the intervention across the country. We were fortunate enough to get some time from the Minister who then directed us to Mr. Keshave Surwade, DDG, Department of Empowerment of Persons with Disabilities. In a step towards evaluating the intervention, Mr. Surwade advised us to get a technical and pedagogical evaluation done by NIEPD. To achieve the same, I hired NIEPD and with the help from you and Mr. Kamal Singh, I led a research group was put together to evaluate the scheme objectively as per your input.

Please find attached the overall summary of the field research.

A mixed group of 10 visually impaired teachers, professors and students was assembled and the device's capabilities were demonstrated to them. Following which, the group rated the following 6 claims in a rating system from 1-5. The group also gave qualitative inputs as to how it could be improved further which have been passed on to the team and are being worked upon. Annie received an overall average rating of 3.92/5 with 70% of the group rating it more than or equal to 4.

The claims and the ratings by each member are as follows:

Criteria	M1	M2	M3	M4	M5	M6	M7	M8	M9	M10	Claim Averages
1. Literacy: Device enables learning how to read, write, type in Braille via self-learning, practicing, auto-corrective feedback and evaluation.	4	4	4	5	3	3	3	3	3	3	3.40
2. Interactive & Gamified Content: Device contains and/or human recorded audio with it guides the user through interactive lessons and exercises. There are telemedicine in vernacular languages to monitor the local folk. There is also fun games to promote learning and children's skills.	3	4	5	2	4	4	2	3	3	3	3.40
3. Monitoring and Connectivity: Device can be connected via Wi-Fi/Bluetooth to local network and internet. This allows for easy remote monitoring and over the air updates.	5	5	5	5	5	5	5	5	5	5	5.00
4. Vernacular and English Medium Content: Device contains learning content in Hindi, Kannada and English.	5	5	5	5	5	5	5	5	5	5	5.00
5. Well Designed Hardware: Device is lightweight with a smooth finish, suitable for children. Device has 2 large sized Braille cells for the fingers, 6 standard sized cells for reading, a digital Braille cell for writing, ergonomic & easy to press keys on Braille style keyboard.	3	5	5	4	4	4	4	5	2	4	4.20
6. Minimal Training: Device needs minimal training for teachers and students.	1	5	2	2	2	3	3	3	1	2	2.50
Research Group Member Averages	4.17	4.67	4.33	4.00	4.00	4.00	3.67	4.33	2.80	3.17	3.60

## Field Research Yields Final and Largest Study of the Chernobyl Site

The details of each claim along with relevant visualizations can be found in the Attached file - Field Research Results

It would be a huge boost and encouragement to indigenously developed assistive technology if you would write a letter to Mr. Burwade recommending Anirudh and our smart class solution. This would help us to realise our lofty ambition of increasing literacy among the visually impaired in India by leaps and bounds.

**It is a**  
non-Swiss-based  
Director & Co-Founder  
Thinebell Labs  
(formerly Project Mutual)