

FOUR BUTTONS (IF PRESSED)

1. **Register Button:** Para sa pag input nung sinulat/tinusok ng bata sa E-slate.
2. **Erase Button:** Para maerase yung ininput/niregister ng bata.
3. **Read Button:** Sasalitain yung word na naregister.
4. **Display Button:** Didisplay ng Mechanical Display (SMA coils) yung equivalent na letter/s or words.

BRAILLE LETTERS WRITING POINT OF VIEW (POV) "READING"

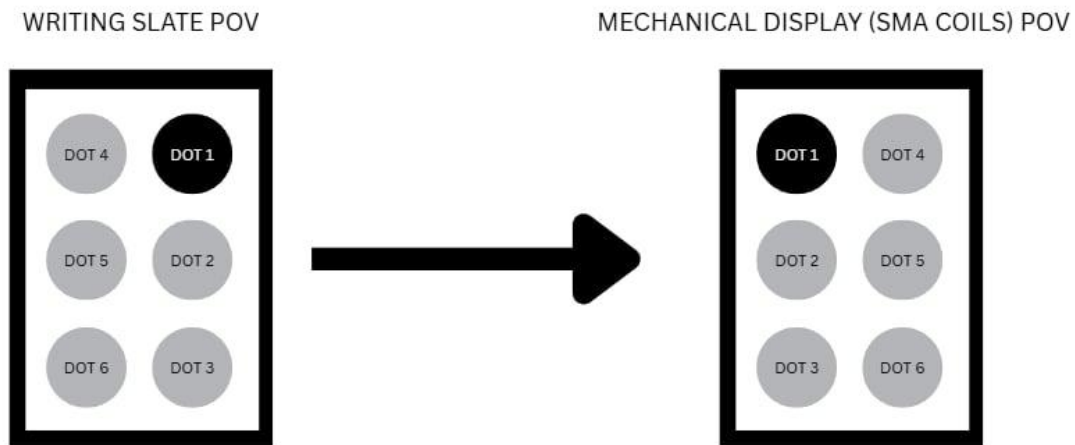
Note: Eto yung Point of View kapag "Reading". bale baliktad dito yung tutusukin nila sa Writing Pad/Slate.

a	b	c	d	e	f	g	h	i	j
⠁	⠃	⠉	⠙	⠑	⠋	⠗	⠈	⠊	⠛
k	l	m	n	o	p	q	r	s	t
⠅	⠇	⠓	⠝	⠕	⠏	⠑	⠗	⠎	⠞
u	v	w	x	y	z				
⠥	⠧	⠧	⠭	⠽	⠵				
						ñ			
						⠏⠽			
							ng		
							⠏⠗		

MIRROR EQUIVALENT BETWEEN THE WRITING SLATE AND THE MECHANICAL DISPLAY:

Note: kapag magsusulat, kelangan ng bata makabisado yung Mirror equivalent ng kada characters. Bale yung mga letter na nasa taas ay POV mo kapag "Reading" so ang kailangan nilang tusukin kapag "Writing" sila, ay iyung kabalikaran na dot/s neto.

EXAMPLE FOR LETTER “a”



Nandito po sa link kung paano naman kapag isusulat na ay capital letters, numbers, punctuation marks. Nandito lahat ng Curriculum ng DEPED.

<https://archive.org/details/instructionmanua00depa/page/n22/mode/1up?view=theater>

STAGES/PHASES OF TOTURING

Ang mga phases/stages na ito ay nakadesign sa isang knob na irorate lang kung gusto mong mag proceed sa susunod na stage. Bale ang initial state neto ay naka "OFF" position then kapag nirotate ng isa, pupunta na sa 1st phase and so on.

1. FIRST PHASE: EMBOSING PHASE

Note: Dito sa phase na ito tuturuan ang bata sa pagiging pamilyar nya sa mga Dot numbering ng isang cell. Ang isang Cell ay katumbas ng isang Square na may anim na dots.

Direction:

The first standard tutor meets the scaffolding needs of the beginner students learning the concept of six dots. This includes understanding every particular number of dots along with their position in a Braille cell. Whenever the stylus is touched to the slate, the system speaks the position of dots that have been in contact within the Braille cell and compares it to the required correct dot position stored in the system. Every pressed position should be registered using the "Register Button" to enter the data. The system announces the position of the dot if the user presses the "Read Button" and if the wrong

position is touched, the system states “Mali, subukan muli.” followed by a short explanation, such as “Ang tamang tuldok ay [dot number].”. However, if written correctly the system says “Tama, ito ay [dot number].”. The mechanical display reflects the mirrored equivalent in the form of embossed pins. This enables the student to understand the cause-and-effect relationships among different dots.

2. SECOND PHASE: CHARACTER IDENTIFICATION PHASE

Note: Dito sa phase na ito tuturuan ang bata paano namn sumulat ng Braille letters, (Small and Capital letter), Numbers, Punctuation.

Direction:

The second standard tutor software focuses on character identification. This starts to teach and reinforce the alphabet, cardinal numbers, capitalization, and punctuation of the equivalent Braille character. This section instructs the character identifier for the capitalization and cardinal numbers. For instance, capitalization is indicated by placing dot 6 before the letter affected and two consecutive capital signs (dot 6) if the capital is implemented to all the letters. Meanwhile, cardinal numbers are just equal to the Braille letters a through j however preceded by the number sign (dots 3-4-5-6). Some punctuation marks involve two Braille cells, and this will be included in this phase. An additional register and erase button will be implemented to input the letter that the user writes as well as correct it if necessary. The tutor will speak and display the letter and the punctuation marks written in the current cell using the dedicated buttons. After writing the required word and pressing the read button, the system declares the character (e.g., “Tama, naisulat mo ang titik C.”). If the students input the wrong dot combinations, the system will announce an error such as “Mali ang naisulat mo” and suggest the correct character by announcing the dot composition of the character (e.g., “Tandaan ang letrang ito ay isinusulat sa tuldok na [dot combination of letter C].”).

3. THIRD PHASE: MORPHOLOGY PHASE

Note: Dito sa phase na ito tuturuan ang bata paano naman sumulat ng mga word. So bale dit gagamit na talaga ng multiple na cells kasi word formation na.

Direction:

To meet the needs for advancing, the third standard tutor introduces the concept of morphology which includes word formation with the implementation of capitalization and cardinal numbers composition. This stage encourages speed by not requiring learners to press the register button per letter. Instead, a letter has already been registered on every transition between cells and the register button is used when the writing is complete. This phase additionally offers word feedback by keeping a character history and utilizing text-to-speech synthesis to speak the word written. The ability to erase and then correct functionality is used to fully augment the word feedback. In this stage the system allows the student to work on spelling and writing structure. The constructed word will be spoken by the system after pressing the read button allowing the student to hear the word and check if written correctly. The system’s response if written correctly is “Tama, naisulat mo ang salitang [word].”. If the learner writes the incorrect word, the system will dictate “Mali, hindi ito ang tamang salita, ang babay ng salitang

[word] ay [correct spelling of the word].”. The correct spelling will be provided by the system.

4. FOURTH PHASE: MORPHOLOGY PHASE

Note: Dito sa phase na ito tuturuan ang bata paano naman magsulat ng sentence. Bale dito masusukat kung kaya na talga nila magsulat ng buong pangungusap.

Direction:

In this stage, the position feedback is removed as the learner is presumably familiar with the dot positions. The audio feedback is then applied after the last sentence is written through the register button. Since in this stage, the sentence formation is put into practice, every word should be registered first on the system by pressing the register button on every word then another dedicated button will be pressed to read the whole text. The system will articulate the formed sentence/s after the user is done writing by pressing the read button. The written correct sentence response of the system is “Naisulat mo ng tama ang pangungusap.”. If the system detects mistakes in constructed entries the system will state or read the whole sentence/s. Additionally, it will mention the needed spacing between words and punctuation marks included. For example, the tutor will say “Naglalakbay [“puwang”] sa [“puwang”] malayong [“puwang”] lugar [“puwang”] ang [“puwang”] mga [“puwang”] kalalakihan [“tuldok”].

5. FIFTH PHASE: GAMIFICATION

Note: Eto naman ay game lang bale dito sa phase na ito mag peplay lang ng sounds and proto then isusulat nung bata kung anong hayop yung narinig niya.

Direction:

To encourage the learners to learn Braille writing, the researchers decided to incorporate a game structure that would make students identify by spelling the name of the animal based on the sound the synthesizer will produce. This game aligns with the foundational Braille writing competencies by integrating tasks that reinforce spelling, listening, and recognition skills. The system will give ten kinds of animals and will play the specific sounds of each animal. This will be categorized by the length of the name from easy to difficult rounds. Once an animal sound is played, the user is prompted to spell the name of the animal. There are three allowable mistakes for the student, with the sound replaying after each mistake before the answer is revealed. The game includes a scoring mechanism that tallies correct responses. The student will progress through the last animal and then know the score after all the questions are completed, giving the student a sense of accomplishment.

6. SIXTH PHASE: FREE HAND WRITING

Note: bale dito sa phase na ito ay free hand lang. Kung anong sinulat nung bata o tinusok ng bata babasahin lang nung system. Kahit mali o tama ang spelling. Dito para lang silang sumusulat sa papel tapos binasa lang ng system natin kung ano ang isinulat.

COMMAND PROPTS AND AUDITORY FEEDBACK

Note: eto yung design kung paano mag sasalita/response yung bawat stages natin. eto yung sasalitain o configuration ng bawat stage.

In the proposed system, the designated knob functions as the primary control interface for transitioning through different options for tutoring phases. The initial state of the knob upon startup is in the “Off” position which indicates that the system is inactive. Once the user turns the knob to the first stage, the system will turn on automatically and launch the first phase of the tutoring program. The system will integrate some English terms for the instruction to avoid confusion and provide a clear understanding of every procedure.

1) Startup System

- After the system has been plugged, the knob will initially be in the “Off” position. No functionalities are operational at this point.
- Once the user turns the knob from the “Off” position to the first tutoring phase (Embossing Phase), it will automatically activate and start the tutoring session.

2) Audio Response Upon Activation

- Upon the knob has been placed on the first phase, the Text_to-Speech synthesizer will instantly provide an auditory confirmation: “Maligayang pagdating sa Phase 1: Pag_aaral ng basic Braille dots”
- The system will then explain the concept of Braille dot numbering and command the user to poke it manually in the Braille slate using the metal-tipped stylus.

3) Transition Between Phases

- The user has the ability to continue to navigate between different phases of the tutoring system using the knob. As the user turns to subsequent stages, the system will provide an audio response such as: “Maligayang pagdating sa Phase [Number of the specific phase]: Pag-aaral ng [Dedicated tutor program of the phase]” .
- The system will automatically load the corresponding lesson and related tasks with that phase and provide the learning guidance.

4) Manual Progression

- If the user stays in the current phase after completing the task, the system will remain in that phase and will restart the tutorial session from the beginning and provide auditory feedback: “Binabati kita. Natapos mo na ang aralin. Magsisimula muli ang tutorial sa Phase 1. Kung gusto mong lumipat sa ibang bahagi ng aralin, mangyaring ilipat lang gamit ang knob”.
- If the user proceeds to the other phases once the knob is turned, the system will load the lesson for that tutoring program and provide opening audio feedback of that stage.

5) Deactivation

- The user can turn the knob back to the “Off” position anytime, which will automatically power off the system and stop all auditory and tactile outputs.