Automated Visual Acuity Test (AVAT)

Digital LifeLine

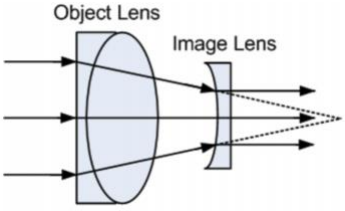
Next-Gen, Accurate, Automated Visual Acuity Assessment

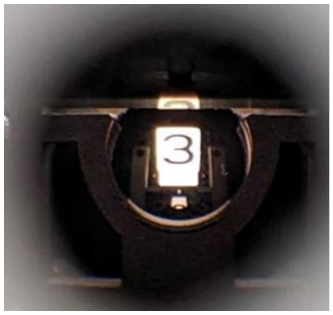
Self-administered VA testing that can be done with minimal or no supervision and requires 6x less space requirement

Digital Life Line Pte Ltd

Product Highlights

Afocal optics recapitulates 6-meter test experience for clinical-grade accurate results

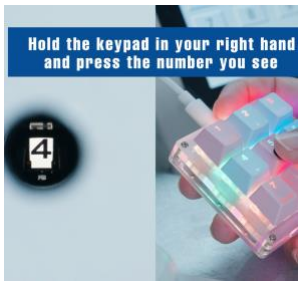


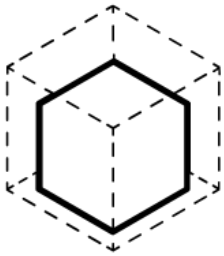


Adaptive testing displays optotypes based on patient input

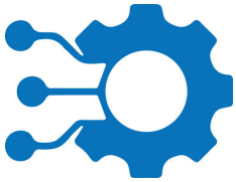
Simple, on-screen instructions to guide patients, reduces need for supervision

Intuitive number keypad system for self-testing





6x reduction in size means more VA testing can be performed without increasing floorspace



Results can be **integrated into EMR** for easy retrieval and removes human error

AVAT testing has been validated against gold standard manual Snellen method, with excellent correlation (Pearson correlation coefficient: 0.94), while achieving high satisfaction scores from patients and hospital staff.

Background

Visual acuity testing is the most common eye procedure performed at eye specialist clinics but requires trained staff and 6 meters between the patient and the Snellen Chart, creating a major bottleneck in the clinical workflow.

AVAT utilizes optical components to generate comparable images as those seen from a 6m Snellen Chart while shrinking the distance required, which allows it to fit on a platform half the size of an office table.

The device incorporates an AI-enabled interactive interface that displays test characters after analyzing user input, which avoids cheating that is common with the Snellen chart testing that uses the small character sequence.

Operational Notes

AVAT is designed to run in kiosk-only mode, which maximizes patient compliance and proper testing workflow. Audio prompts will guide the staff when test is completed and if optional pinhole testing is necessary

AVAT Testing Instructions

Scan or enter ID. Follow screen instructions.

Rest your chin and forehead on the supports.

Use the joystick to move the AVAT device until you see '+'. To adjust the height, turn clockwise or anticlockwise.

Adjust the eye flap to cover eye not being tested.

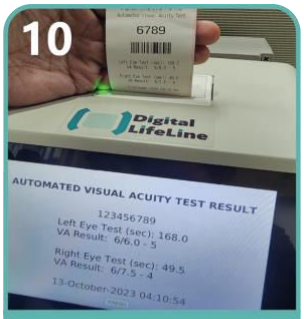
Hold the keypad and rest your finger on number '5'.

Test starts when you see a number.

Press the number that you see in AVAT on the keypad. If you cannot see clearly, press '1'.

Continue until you hear 'TEST COMPLETED'. Adjust AVAT to your other eye and repeat steps 4-7.

If pinhole test is needed, adjust the pinhole flap to the indicated eye.



When the test is completed, results will be printed.

Specifications

Device Model	**AVAT01**
Operating Principles	A patient's visual acuity can be accessed by displaying optotypes at varying sizes
Intended Use	Measurement of vision at fixation in one or both eyes, with or without optical correction
Components	1 x Computing module with touchscreen, speaker, and thermal printer 1 x Visual Acuity module 1 x adjustable stage for Visual Acuity module 1 x adjustable chin-rest, forehead rest 1 x number keypad 1 x barcode scanner 1 x Power Supply module 1 x frosted eye occluder flap 1 x eye occluder flap
Technical Specifications	CPU type: Broadcom BCM2711 Processor Quad core A72 (ARM v8) 64-bit SoC @ 1.8GHz RAM: 4GB LPDDR4 SDRAM Touchscreen: 7 inch TFT LCD screen 800 (RGB) × 480 pixels Display screen: 5.5 inch 1440 (RGB) x 2560 pixels
Power Source	Input voltage range: 88 ~ 264V AC, 125 ~ 373V DC Output voltage: 4 x 5.26V 3A female USB
Measurement range	6/60 up to 6/4.5 on the Snellen scale
Accuracy/Calibration	Within 2 optotypes (0.04 LogMAR) on the Snellen scale
Data format	Printout of visual acuity results
Operating Conditions	Operating temperature: 20 to 35°C
Storage Conditions	Storage temperature: 5 to 40°C
Operating Requirements	1 x power point

Safety information:

- Operate the device only as intended. Do not use for any other purpose.
- Do not plug or unplug the power cord into the electrical outlet with wet hands.
- Do not touch any internal wires.
- Do not overload power outlets. Plug the device into the appropriate voltage outlet.
- Keep all components away from direct heat, flammable chemicals and water.
- Do not drop the unit or subject it to strong shocks.
- Store the device in the original storage box in a cool, dry place when not in use.
- Do not disassemble or attempt to repair the unit or components.

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