

Lightweight Smartphone Cognitive Screening Tool For Alzheimer’s Disease And Dementia

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INTRODUCTION	METHODS	RESULTS	CONCLUSIONS	REFERENCES
Alzheimer's disease and frontotemporal dementia (FTD) are known to cause progressive cognitive decline, with a early detection critical yet challenging due to the dependence on costly in-person tests. Smartphone apps offer a scalable, remote screening through cognitive games. Simple smartphone games can screen memory and brain speed skills which are affected first in dementia. This beginner friendly app uses two validated tasks (such as number memory, color-word interference) adapted from clinical tools, making screening accessible to anyone with a basic Android phone, particularly valuable in underserved areas like the rurals.	A single-screen MIT App Inventor app was developed featuring two 90-second cognitive tasks. Task 1 (Number Memory) displays a 3-digit sequence, hides it, then requires users to tap the correct order on number buttons while timing response latency and errors. Task 2 (Color Stroop) presents color words printed in mismatched ink colors (such as "RED" in blue letters), asking users to tap the actual ink color across 5 trials, measuring reaction time and accuracy. Scores combine memory time (seconds) + color errors × 10, categorized as Green (<400, normal), Yellow (400-600, monitor), Red (>600, clinical evaluation needed). Data is saved locally via TinyDB with timestamps.	Preliminary family testing with users showed promising usability, achieving high completion rates for the assessment. Initial observations suggest age-related differences in task performance and further testing is needed to establish reliability benchmarks against the clinical standards.	This simple smartphone app provides practical dementia screening through validated cognitive measures, requiring zero technical expertise to use. High completion rates and clear risk categorization make it ideal for family-led monitoring. Future iterations could add age-normed scoring and WhatsApp score sharing, scaling early detection where specialists are scarce.	Alim-Marvasti, A., Kuleindiren, N., Harvey, K., Ciocca, M., Lin, A., Selim, H., & Mahmud, M. (2022). Validation of a rapid remote digital test for impaired cognition using clinical dementia rating and mini-mental state examination: An observational research study. Min, J. Y., Kim, D., Jang, H., Kim, H., Kim, S., Lee, S., et al. (2025). The validity of a smartphone-based application for assessing cognitive function in the elderly. CONTACT E-mail: dalene.eph@gmail.com LinkedIn: www.linkedin.com/in/dalene-ephme-ben-george-3b784b3a9  ALZHEIMER'S ASSOCIATION 