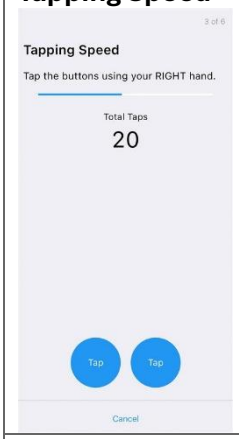
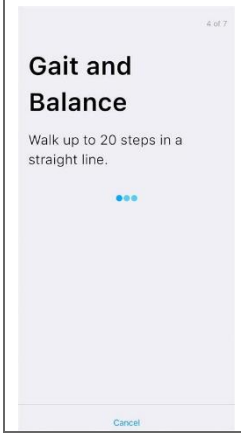
MyCap Active Tasks

Motor Activities

Task Name	*Description*	*Configurable Settings*	*Use Cases*

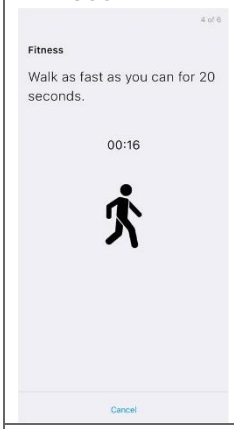
Range of Motion
 
	• Participants follow movement instructions while accelerometer and gyroscope data are captured to measure flexed and extended positions for the knee or shoulder.
	• Instructions are read aloud.
		• Edit task title
		• Add intended use description
		• Select which body part is being measured (knee or shoulder)
		  • Default = Knee
		• Select which limb is being measured (left or right)
		  • Default = Left	

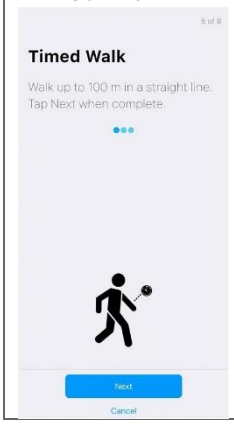
Tapping Speed
 
	• The user rapidly alternates between tapping two targets on the touch screen, with the resulting touch data used to assess basic motor capabilities such as speed, accuracy, and rhythm.
	• Accelerometer data can be collected.
		• Edit task title
		• Add intended use description
		• Select which hand is tapping (right hand only, left hand only, or both)
		  • Default = Both
		• Adjust the task length (seconds)
		  • Default = 20
			Used in studies on Parkinson's disease.

Gait and Balance
 
	The user walks for a short distance (may be indoors). This semi-controlled task may be used to estimate stride length, smoothness, sway, and other aspects of the participant's walking.	• Edit task title
		• Add intended use description
		• Adjust number of steps per leg
		  • Default = 20
		• Adjust duration of rest (seconds)
		  • Default = 20
			Used in studies on Parkinson's disease.

Fitness

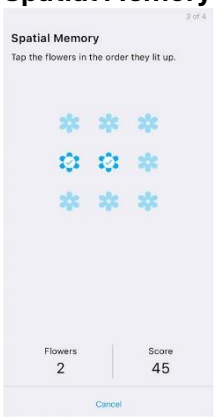
Task Name	*Description*	*Configurable Settings*	*Use Cases*

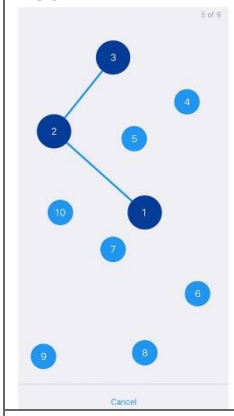
Fitness
 
	The user walks outdoors at the fastest possible pace for a specified duration (e.g. 20 seconds). Towards the end of the walk, user is asked to sit down and rest for a period.	• Edit task title
		• Add intended use description
		• Adjust duration of walk (seconds)
		  • Default = 20
		• Adjust duration of rest (seconds)
		  • Default = 20
			Similar measures, such as 6-minute walk or 20-minute brisk walk, were used in studies on cardiac rehabilitation/health.

Timed Walk
 
	• Measures lower-extremity function. User walks specific distance (e.g. 109 yards / 100m) in a straight line, then the same distance in the opposite direction.
	• The data collected by this task includes accelerometer, device motion, and pedometer data.
		• Edit task title
		• Add intended use description
		• Adjust length of walk (meters)
		  • Default = 100
		• Adjust time limit of walk (seconds)
		  • Default = 180
			Found in studies on older emergency department (ED) patients with falls.

Cognition

Task Name	*Description*	*Configurable Settings*	*Use Cases*

Spatial Memory
 
	• The user observes and then recalls pattern sequences of increasing length in a game-like environment, and the resulting data can be used to assess visuospatial memory and executive function.
	• The span (length of the pattern sequence) is automatically varied during the task, increasing after successful completion, and decreasing after failures. The game finishes when either max tests have been completed, or the user has made max consecutive failures errors in a row.
	• Data that is collected is the user's score, details of their game, and touch inputs.
		• Edit task title
		• Add intended use description
		• Adjust initial span of pattern sequence length
		  • Default = 3
		• Set the minimum and maximum span of pattern sequence length
		  • Min. Default = 2
		  • Max. Default = 15
		• Adjust the play speed (time/sequence item)
		  • Default = 1
		• Adjust maximum number of rounds to conduct
		  • Default = 5
		• Adjust maximum consecutive failures
		  • Default = 3
			Used in studies on Parkinson's disease.

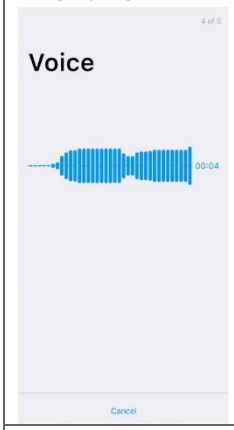
Stroop 	The participant is shown a series of words that are displayed in color and must select the first letter of the color's name.	• Edit task title • Add intended use description • Adjust the number of attempts (Stroop questions to include) • Default = 10	Found in multiple aging and cognitive health studies.
Trail Making Test 	The participant connects a series of labeled circles, in order, and the time to complete the test is recorded. The circles can be labeled with sequential numbers (1, 2, 3, …) or with alternating numbers and letters (1, a, 2, b, 3, c, …).	• Edit task title • Add intended use description • Add trail making instructions • Select trail type (A or B) • Default = A	Found in various aging and cognitive health studies.

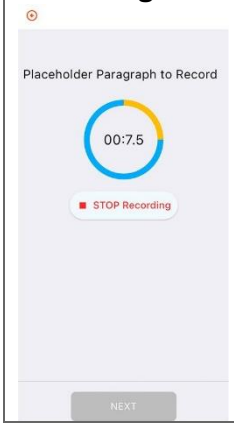
Paced Serial Addition Test (PSAT)
 
	Measures information processing speed, flexibility, and the calculation ability of the user. Three versions: auditory (PASAT), visual (PVSAT), auditory and visual (PAVSAT).	• Edit task title
		• Add intended use description
		• Select presentation mode (auditory only, visual only, or auditory and visual)
		  • Default = Aud. & Vis.
		• Adjust stimulus interval (time interval in seconds between two digits presented)
		  • Default = 1
		• Adjust stimulus duration (time duration in seconds the digit is shown) - PVSAT & PAVSAT only
		  • Default = 0.8
		• Adjust series length (number of digits presented)
		  • Default = 60
			Commonly used measure in evaluating student achievement and in people with multiple sclerosis and TBI. Although not through MyCap, a great body of literature reported the use of the same paradigm. Prone to measurement bias such as education, math, anxiety, and practice effects.

Tower of Hanoi 	• The user solves the classic Tower of Hanoi puzzle by moving the entire stack to the highlighted (blue) platform in as few moves as possible. This task measures the user's problem-solving skills. • Task finishes when the user completes the puzzle correctly or concedes that they cannot solve the puzzle.	• Edit task title • Add intended use description • Adjust number of disks in the puzzle • Default = 4	This test was used in a large cohort study examining cognitive aging from 18-85 years old. The paradigm was commonly operated on computer platforms and showed sensitivity to changes due to cognitive aging /AD.

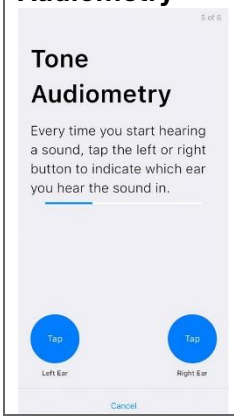
Speech

Task Name	*Description*	*Configurable Settings*	*Use Cases*

Sustained Phonation 	The user makes a sustained sound, and an audio recording is made. Analysis of the audio data is not included but might naturally involve looking at the power spectrum and how it relates to the ability to produce certain sounds.	• Edit task title
		• Add intended use description
		• Add speech instruction when recording begins
		• Add short speech instruction during audio recording
		• Adjust duration of timer for audio collection (seconds)
		  • Default = 20
		• Choose to check audio level for background noise (yes or no)
		  • Default = No
			Used in studies on Parkinson disease (vocal dysfunction) and cardiac rehabilitation (respiratory measure).

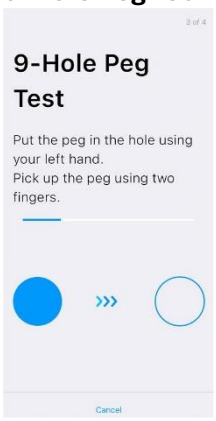
Audio Recording 	The user records spoken phrases using the device microphone. Recording length can be customized.	• Edit task title • Edit intro page title & instructions • Edit capture page title & instructions • Adjust recording time (maximum length of time in seconds to record) • Default = 10	Used to establish parameters for screening participants for early signs of disease.

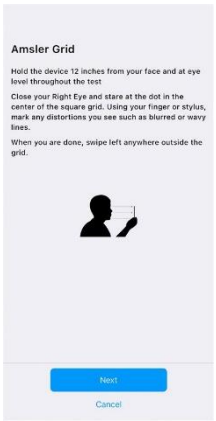
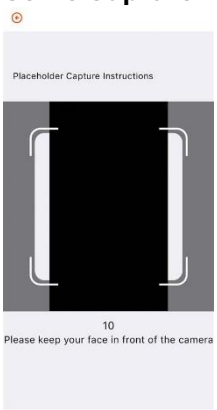
Hearing

Task Name	*Description*	*Configurable Settings*	*Use Cases*
Tone Audiometry 	The users listen through headphones to a series of tones and tap left or right buttons on the screen when they hear each tone. These tones are of different audio frequencies, playing on left/right channels, with the volume being progressively increased. Data collected in a dB SPL scale.	• Edit task title • Add intended use description • Add speech instruction when recording begins • Add short speech instruction during audio recording • Adjust tone duration (maximum length in seconds for each tone) • Default = 20	Not much in the literature on this version. However, the paradigm has been used in many studies examining hearing and cognitive aging: hearing loss is associated with dementia.

Hand Dexterity

Task Name	*Description*	*Configurable Settings*	*Use Cases*

9-Hole Peg Test
 
	• Two-step test of hand dexterity.
	• User picks up the peg, places it in the hole, then removes from the hole, in total 9 times (for both right and left hand). Data on the number of pegs, an array of move samples, and the total duration is collected.
		• Edit task title
		• Add intended use description
		• Select dominant hand to be tested first (left or right)
		  • Default = Left
		• Adjust number of pegs in the pegboard
		  • Default = 9
		• Adjust threshold value for detection area
		  • Default = 0.2
		• Select rotated task variation (yes or no)
		  • Default = No
		• Adjust time limit (seconds to validate peg position)
		  • Default = 300
			• Used in studies on rheumatoid arthritis (RA) or chemotherapy-induced peripheral neuropathy (CIPN).
			• Used to measure the MSFC (Multiple Sclerosis Functional Composite) score with Multiple Sclerosis (MS) or signs of Parkinson's disease or stroke.

Task Name	*Description*	*Configurable Settings*	*Use Cases*
Amsler Grid 	Holding the device 12 inches from the face, the user observes the grid while closing one eye for any anomalies, and marks the areas that appear distorted, using their finger or a stylus. No data is collected on whether the 12-inch distance is maintained.	• Edit task title • Add intended use description	Used to detect the onset of vision problems, such as macular degeneration.
Selfie Capture 	Capture a selfie using the front facing camera with facial detection.	• Edit task title • Edit intro page title & instructions • Edit capture page title & instructions • Adjust detection time (length of time in seconds face should be in focus) • Default = 10	Used to establish parameters for screening participants for early signs of disease.