

Table 2. Apps features and functionalities (technology and design characteristics) from the included studies.

Country / Year	TECHNOLOGY								DESIGN							
	Smart phone features and operating system	Text messaging (SMS), reminder or similar	Camera and other device for collecting and monitoring data	Communication tools to other mobile phone features and existing apps	Programming interfaces (APIs) and suitable for users	Automated sensing through sensing devices	Web interface for connectivity and data exchanging	Other available technology features	Type of mindfulness practices or interventions provided (self- and/or supervised-training; content and characteristics)	Tracking and monitoring personal mindfulness practice and health information and coaching	Online or remote accessing to trainers or health professionals for personalized monitoring and coaching	Leveraging social influence (by facilitating peer-to-peer support, influence and/or modelling, integration of social media functions)	Increasing the accessibility to mindfulness and related health information (by information and/or tailored messages, -content and frequency pattern-, glanceable displays)	Utilizing any kind of entertainment as an educational tool or approach (messages with fun content, mobile phone-based video games to support mindfulness practice or related healthy behaviors)	Declaring "best practice" principles	Other available functionality
Taiwan, 2012	HTC Desire HD running Android 2.3 with a 4.3-in LCD screen	NA	NA (see sensors)	NA	NR	(1) A pair of sensing shoes that detect the force distributions of the feet. In addition, it transfers the sensed values to the relay wirelessly.	NA	To provide multimedia guidance and measure its timed reaction to it by three	Self-guided "Walking Meditation" (to improve awareness of walking conditions by watching visual feedback in	To detect a user's motion (it can detect the footstep frequency and speed - footsteps per minute - and walking method in	NA	NA	NA	NA	NR	(1) To help beginners to synchronize footsteps with breathing and to land every footstep with toes

The sensing module is based on Atmel's high-performance, low-power, 8-bit AVR ATmega328 microcontroller and a 2.4-GHz Zigbee 1-mW chip antenna module. The module size is 2.2 cm x 3.5 cm x 0.5 cm with an overall weight of 85 g; (2) a breathing garment (includes a respiratory girth sensor (RGS), a medical instrument, and a Bluetooth module)

types of feedback mechanisms are designed to show the breathing and walking information: visual mechanism, auditory mechanism, and visual-auditory mechanism

real time) real time), breathing conditions (measurement of the elongation of the thorax caused by breathing - breathing rate and depth, inhalation and exhalation time and their ratio can be obtained), and the remaining time of meditation

first; and (2) to allow breathing rhythm control (for example, the user can set 3 s for inhalation and 4 s for exhalation)

USA, 2010	HTC 3600 mobile phone (Android operating system)	NA	Touch screen.	NA	NA	NA	NA	NA	Self-guided mindfulness-based exercises: (1) "breathing exercise", a blue circle that expanded	General expression of emotional experience captured by touch screen scales for mood reporting: (1)	NA	NA	NA	NA	NA	NA
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and
contracted
slowly to
encourage
deliberate
and slower
breathing;
(2) "Body
Scan" that
includes an
outline of a
human
figure with
rhetorical
questions
about where
the user
might be
holding
tension, and
as the user
clicks
through
the
questions,
that section
of the body
outline
changed from
red to blue
(resemblance
to the
classical
mindfulness-
based
exercise also
called "body
scan"); and
(3) the "Mind
Scan",
although
mainly a
Mood Map (a
touch-screen
translation
of the
circumplex
model of
emotion,
where
participants
describe
their mood
by indicating
its location
on a two-
dimensional
space formed
by the
horizontal
axis of
"negative-
positive" and
the vertical
axis of
"high-low"
energy), and
(2) single-
dimension
mood scales
for
happiness,
sadness,
anxiety, and
anger
(arranged
vertically on
the screen
with an 11-
point range
with all
entries made
via the touch
screen). The

cognitive experience
approach, sampling
can be app pushed
associated to these scales
the cognitive to
defusion participants
techniques at scheduled
trained times in the
during morning,
mindfulness- evening and
based throughout
exercises. the day.

NA=not available
NR=not reported