TOOLS of the TRADE

Apple iPad Mini

The smaller version of Apple's iPad tablet, the just-released iPad Mini, is actually larger than most of the subset of smaller tablets. The Mini has a screen that measures 7.9" compared to the 7" screen on a tablet like Google's Nexus 7. The Mini is available with Wi-Fi or Wi-Fi and cellular, and both can be had in white or black. Both models have Bluetooth 4.0 connectivity. There's the choice of 16GB, 32GB, and 64GB, and the processor is Apple's dual-core A5. At 7.87" tall, 5.3" wide, and 0.28" thick, the Mini is 23% thinner and 53% lighter than the iPad, and it fits comfortably in one hand. It weighs 0.68 pounds. There are two cameras: a 1.2MP FaceTime HD camera that has face detection and backside illumination and a 5MP iSight camera with a five-element lens, also with face detection, autofocus, and backside illumination. Both cameras have photo and video geotagging. Video recording is 1,080p HD featuring video stabilization and tap-to-focus while recording. The battery provides up to 10 hours of surfing the Web on Wi-Fi, watching video, or listening to music, and charging is either through the power adapter or USB connected to your computer. The Mini runs the same apps written for the larger iPad, and it has the same hardware for movement, including the three-axis gyro, accelerometer, and an ambient light sensor to provide the same experience in a handier format. www.apple.com

Samsung Galaxy Note II

Having overcome a lot of original skepticism inspired by its size, the Galaxy Note II is the latest version of a successful format now called phablets—somewhere between a smartphone and small tablet. The screen size eliminates phone squint while still keeping a slim profile. The screen is a 5.5", 1,280 × 720 resolution, Super AMOLED HD touch surface that's driven by a quad-core 1.6GHz processor. Another advantage of the Note's size is that it accommodates one of the largest battery capacities in a phone—a 3,100 mAh battery powering up to 16 hours of talk time. The S-Pen works smoothly on the touch screen. You draw on photos, hand-write notes, cut and paste marked up areas of your screen to send to someone, and a function called Airview lets you hover over a file, such as a video, to view it in a smaller screen. When not in use, the stylus slips into the right side of the Note's body. There's 16GB of on-board memory and a MicroSD slot that expands the memory up to 48GB. An 8-megapixel camera can record video at 1,080p, and there's a 1.9-megapixel front-facing cam. There's Multi-shot Camera Mode that will take bursts of stills from which you select the best, as well as a built-in flash and Panorama Mode to stitch widescreen images. Other Note II extras include Bluetooth, GPS with navigation capability, Microsoft Outlook sync, and Swype keyboard. www.samsung.com

Nexus 10 Tablet

Built by Samsung, Google's new Nexus 10 Tablet features the highest-resolution screen available, the latest Android 4.2 operating system (Jellybean), and it begins at $100 less than the comparable iPad Wi-Fi model with Retina screen. Google first offered a 7" tablet, produced by Asus, and finally released, in November, a tablet to compete directly with iPad and the other 10" devices. The screen is just a fraction over 10" diagonally,

and it's the sharpest available at 2,560 × 1,600 (300 ppi). The glass is Corning Gorilla Glass 2. Not all the Android apps can take advantage of this resolution, but that should change over time. The Nexus is Wi-Fi only (802.11n), with Bluetooth 4.0, NFC (Android Beam), and micro USB connectivity. It's available in16GB or 32GB versions, both with 2GB of RAM and a 1.7GHz dual-core ARM Cortex-A15 processor. The main camera is 5MP, and the front is 1.9MP. Other hardware tools include an accelerometer, GPS, gyroscope, barometer, compass, and ambient light sensor. Overall dimensions of the Nexus 10 are 10.4" × 7.0" × 0.35", and it weighs 1.3 pounds.

www.google.com/nexus

Griffin SmartTalk Solar

Griffin's SmartTalk device attaches to your windshield to become a hands-free Bluetooth speakerphone with one additional advantage: It charges itself through a solar panel mounted on the back of the device. A clear plastic holder with suction cups attaches to the windshield, and if you're carrying a paired iPhone or other smartphone, it turns on automatically as you enter the car. It works with your phone's voice-command features, and there are buttons for volume up and down, mode select, and a large multifunction button to answer and end calls. The unit charges constantly in sunlight, but there's also a 12-volt USB car charger for bad weather and nighttime recharging. Lights indicate when the unit is turned on, when you are on a call, and when it needs recharging. An echo-suppressing DriveSafe Microphone provides clear sound.

www.griffintechnology.com

TECH FORUM

"Siri, should I ask Google?"

By Michael Castelluccio, Editor

The soft-spoken search companion known as Siri cost Apple $200 million in April 2010. It took a year and a half to weld the language-recognition program to the built-in apps running on the iOS system, and then, in October 2011, Apple announced the release of the iPhone 4S with a voice-activated personal assistant—Siri. What followed was the integration on the iPad and the iPod Touch 5 and a high-profile television campaign featuring budding personal relationships between famous people and their new digital friend with all the answers. On its part, Google also integrated its Voice Search into Android devices and then doubled down on an upgrade that pushed performance beyond Siri's beta capabilities. Today, Google Voice Search lives on Apple as well as Android devices.

UNNATURAL HCI (HUMAN-COMPUTER INTERFACES)

Fourteen years ago, in a paper presented to the IEEE (Institute of Electrical and Electronics Engineers), several engineers outlined the essential problem with the human-computer interface: "Humans perceive the environment in which they live through their *senses*—vision, hearing, touch, smell, and taste. They act on and in it using their *actuators* such as body, hands, face, and voice. To have the human-computer interaction be as natural as possible, it is desirable that computers be able to interpret all natural human actions. Hence, computers should interpret hand, body, and facial gestures, human speech, eye gaze, etc." What computer users had at the time were the archaic keyboards, mice, and drawing implements that merely insulated the space between humans and computers.

Finally, we're beginning to move the parameters of perception. You can create a password for your smartphone with your face. The phone's camera looks at you,

continued on next page

and the circuits check if it's you. Most navigation is managed with fingertips on glass, and you can talk to the phone itself, not just whomever the phone connects you to. Our phones are getting smarter based not on increased *understanding* but through increased *recognition* of what we say, photograph, or draw and tap with our fingers. Finally, the actuators are in play.

NEW NATURAL LANGUAGE INTERFACES

Apple's Siri was assigned a female voice for the U.S. market and a persona so colorful that she (it) has been featured as a character on an episode of the sitcom "The Big Bang Theory." Raj Koothrappali, the astrophysicist who is unable under ordinary circumstances to talk to women, succumbs to the siren call of Siri, falling in love with the sound of the search engine's voice. Siri isn't just voice recognition and operational search algorithms—there's a fair amount of whimsy programmed into its presence.

There are two different stories about the source of Siri's name. The more pedestrian involves Siri's connection to its first home as a DARPA-funded project at the Stanford Research Institute. The institute's SRI initials became Siri. The poetical version was presented at a Chicago seminar by Siri cofounder Dag Kittlaus. He explained, "Siri is named for a beautiful woman (Sigrid) who leads you to victory. [And] consumer companies need to focus on the fact that the name is easy to spell, easy to say."

Google's Voice Search function is simply called the Google Mobile Search app. With the omnipresent Google root in its name, it's math instead of mythology. The voice that replies to queries is pleasant and female, but the focus is on mathematical speed and accuracy.

Incidentally, if you ask an iPhone, "Siri, how did you get your name?" you will get an answer like this one: "What does my name mean? I don't think I can explain it in your language. Sorry." Don't expect that kind of coyness from Google. A typical Google response to "How did you get your name?" will return pages of Web addresses, beginning with http://howdidyougetyourname.blogspot.com at the top of the stack.

SIRI V. GOOGLE

Siri is a one-year-old on Apple's mobile devices, and it's still in beta, a work in progress. In March 2012, the first lawsuit against Apple's claims for what Siri could do was filed in a U. S. District Court in San Jose, Calif. In a consumer class action suit, Frank M. Fazio told the court that Siri couldn't duplicate in the real world what it appears to do in televised ads. The court eventually accepted the beta status of the product, but that didn't stop a legion of jokesters from testing Siri with difficult and outrageous questions. Many of the results ended up on YouTube. One of the more amusing was the request, "Siri, I need to get rid of a body." One answer for that question drew this response in Siri's sweet voice: "What kind of place are you looking for? Mines, reservoirs, metal foundries, dumps, or swamps?"

The Siri engine has been programmed to provide cute responses for questions that make no sense, but Siri does have a built-in Wolfram Alpha database for math, conversions, and simple definitions, and the speech recognition includes decades of development from Nuance, the Dragon NaturallySpeaking people. Its greatest strength, though, is the way it directly connects requests to apps like the calendar, contacts, to-do list, and so on.

Google Voice Search can be loaded on Android and iOS (Apple) devices, and it's faster and generally provides more impressive responses in tests. The latest version was released last month, and it includes significant improvements in speed and accuracy. If you have an iPhone 4S or later, or other recent Apple mobiles (iPod, iPad), you can download the Google Mobile Search app and just tap on the microphone to use its voice engine to run your own test. Newer Android mobiles have Google Voice Search built in.

It's possible that Apple has tied its mobile future to Siri. The ease with which the program will "make a note" or "call Amy" or "remind you to get a copy of Grisham's new book" puts *natural* in the natural language interface. It not only calls you by name, but it will learn about you from your questions.

What remains now is a serious effort on the part of Siri's developers to increase the speed, eliminate false reads, and more efficiently use the search database it depends on—Google. **SF**