Solution Proposal White Paper

SOLUTION NAME Delta II Mobile-QWERTY Keypad Matrix

INNOVATION THEME Smartphone Keypads

DESCRIPTION

Delta II is a greatly improved single-hand operation mobile keypad intended for QWERTY markets and emerging markets.

MAIN ASPECTS OF THE SOLUTION

Delta II uses an elegant mobile-QWERTY button layout that harnesses human motor memory. By utilizing the user's existing PC keyboard (QWERTY) reflexes, the Delta II letter layout is mastered by new users in less than 5 minutes, with no instructions needed. Delta II's five button wide matrix results in comfortably large, unambiguous buttons in a desirably slim form factor.

CONSUMER BENEFIT

Current mobile phone keypads are compromises, turning off many users.

Some keypads have more than one letter per button, making them unpredictable, inefficient, and complex to operate.

Other keypads use QWERTY, which was not intended for single-hand operation phones. QWERTY's 10-button wide footprint is too wide for hand and finger geometry, trading-off cramped buttons with uncomfortably wide phones and forced two-handed operation.

Finally, keypads with button layouts unrelated to QWERTY (e.g. ABCDE) require months of practice to reprogram our QWERTY motor memory reflexes.

Delta II elegantly solves the above problems, affording consumers the first uncompromised smartphones in the world:

1. **Desirable Form Factor** - Delta II is designed for slim, single-hand operation phones that fit comfortably in one hand - the ideal form factor. No more cramped buttons, uncomfortably wide phones, or forced two-handed operation.

2. **Instant Speed!** - New Delta II users experience pleasant 20 to 30+ WPM typing within 5 minutes out-of-the-box. This makes for quick sales at the phone store. Previously, a grueling 8-15 WPM was typical, *after* learning arcane methods of entering text on misguided, number-centric keypads.

3. **Simplicity** - No instructions are needed. Delta II has one letter per button, leading to simple and predictable texting. Consumers no longer have to correct wrongly guessed words, or hit a button up to four times to enter a single letter.

4. **Comfort** - Delta II equipped phones are comfortably slim, yet Delta II’s buttons are large and far enough apart to comfortably press, even for big fingers. No more ridiculously tiny buttons. Button size and layout are ideal for touch screen phones too.

5. **Emerging Markets** - Delta II and QWERTY are symbiotic. Learn one, and the other is easy. For example, in emerging markets, users might experience a mobile phone first, and a PC later on. When those users start out on Delta II equipped mobile phones, their motor memory reflexes will allow them to quickly learn a PC (QWERTY) keyboard later on.

MANUFACTURER & SERVICE PROVIDER OPPORTUNITIES

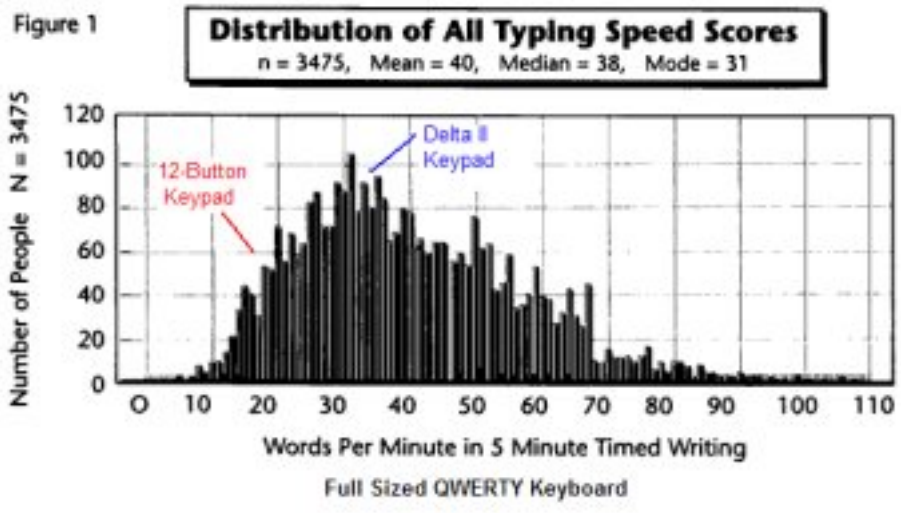
Service providers want to increase customer use of profitable wireless data infrastructure. However, most consumers refuse to type text on standard mobile phone keypads (Roper 2005), limiting consumer use of wireless data applications.

Delta II delivers a much-improved typing experience, therefore service providers will be motivated to sell phones that host Delta II keypads.

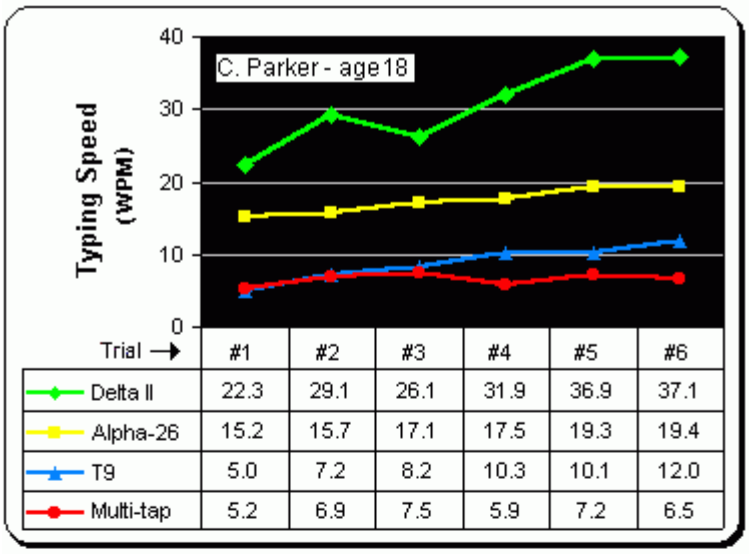
BENCHMARK Current keypad offerings and associated problems:

1. **Multi tap** - complex, inefficient, extra keystrokes needed.
2. **T9** - complex, unpredictable, extra keystrokes needed.
3. **Suretype** - complex, unpredictable, extra keystrokes needed.
4. **Full QWERTY** - forces users to use both hands to operate.
5. **Mini QWERTY** - phone becomes too wide for comfort when holding to the ear.
6. **Micro QWERTY** - buttons become uncomfortably tiny and cramped.
7. **Fastap** - uses an alphabetically ordered layout which conflicts with the users QWERTY motor memory reflexes, resulting in a slow, uncomfortable typing experience.

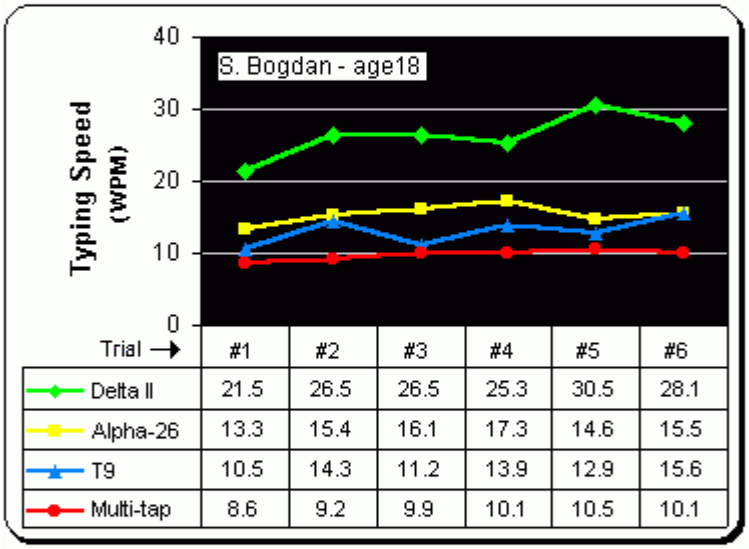
Figure 1



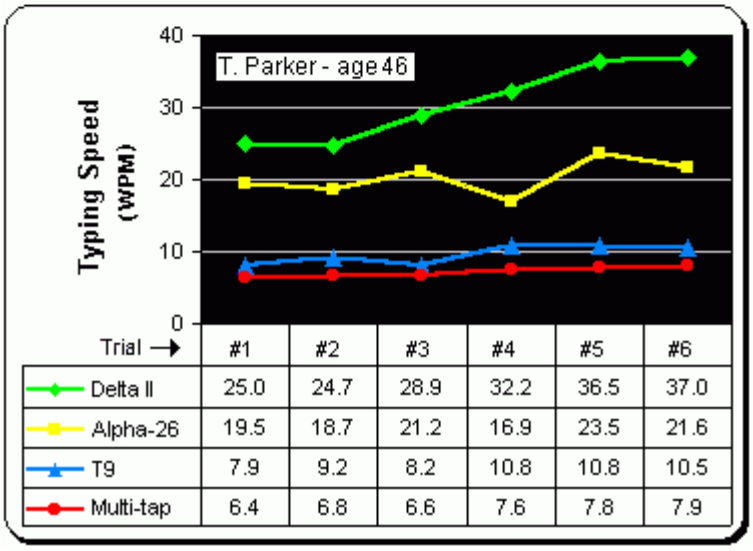
Delta II elegantly eliminates all of the above problems, with no downsides. No single-hand operation keypad in the world matches Delta II's desirability and performance.



Trial →	#1	#2	#3	#4	#5	#6
Delta II	22.3	29.1	26.1	31.9	36.9	37.1
Alpha-26	15.2	15.7	17.1	17.5	19.3	19.4
T9	5.0	7.2	8.2	10.3	10.1	12.0
Multi-tap	5.2	6.9	7.5	5.9	7.2	6.5



Trial →	#1	#2	#3	#4	#5	#6
Delta II	21.5	26.5	26.5	25.3	30.5	28.1
Alpha-26	13.3	15.4	16.1	17.3	14.6	15.5
T9	10.5	14.3	11.2	13.9	12.9	15.6
Multi-tap	8.6	9.2	9.9	10.1	10.5	10.1



Trial →	#1	#2	#3	#4	#5	#6
Delta II	25.0	24.7	28.9	32.2	36.5	37.0
Alpha-26	19.5	18.7	21.2	16.9	23.5	21.6
T9	7.9	9.2	8.2	10.8	10.8	10.5
Multi-tap	6.4	6.8	6.6	7.6	7.8	7.9

The graphs on the left illustrate typical **new user** typing speeds and improvement rates on four printed keypad layouts:

- **Delta II** keypad.
- Alphabetically ordered, 26+ button keypad. (e.g. **Fastap***)
- **T9*** enhanced cell phone keypad.
- Standard 12-button cell phone keypad using **multi-tap**.

Users were timed while they typed **"the quick brown fox jumps over the lazy dog"**, six times into four keypad simulators.

The times were converted to words-per-minute (WPM) and graphed by **trials #1 - #6**.

The test subjects were average typists with essentially **no text-entry experience** on any of the four keypad types except for S. Bogdan, who had previous experience with multi-tap.

The results presented here are typical and consistent with those of other users tested.

* Some names above are trademarks of their respective companies.

MATURITY

1. Delta II is based on the ubiquitous, 130-year old QWERTY keyboard standard.

2. Delta II utilizes human motor memory reflexes possessed by everyone in the world who has typed, or will type on a QWERTY keyboard or keypad.

3. Delta II uses standard QWERTY keypad drivers.

4. Button and touch screen Delta II keypads are simple and inexpensive to manufacture using well-known components and manufacturing techniques.

5. Delta II and derivatives (AZERTY, QWERTZ) are available now.

COMPANY'S BUSINESS CASE Licensing

RISK & UNCERTAINTIES

1. QWERTY loses dominance as the world standard keyboard layout - an unlikely event.

2. Consumers reject Delta II - another unlikely event. With over 200 users tested, 4 out of 5 prefer Delta II because of its speed, simplicity, accuracy, and comfort. Delta II is affirmed by world-renowned experts.

OWNER Chicago Logic Inc.

IPR The Delta II matrix is US patented #7,216,588 and patent pending.

INNOVATION SOURCE Mr. Dana Suess, President

LINKS

Website: www.ChicagoLogic.com

PowerPoint: www.ChicagoLogic.com/delta_ii_keypad_powerpoint.ppt

Interactive Online Demo: www.ChicagoLogic.com/demo.htm

Roper Center for Public Opinion Research -- 69% of mobile phone users don't text message because they dislike typing text on mobile phone keypads: http://www.eweek.com/c/a/Mobile-and-Wireless/Tiny-Keyboards-Biggest-Obstacle-for-Handheld-Users/

Delta II article by senior tech editor Wolfgang Gruener: http://www.tomshardware.com/news/delta-ii-cellphone-keypad,2581.html