



KTtype

Speak more with less effort

KType

- KType Overview:
 - What is KType?
 - Who is it for?
 - How can you help?
 - How does KType work?
 - “KType for iPad” Features



What is KType?

- KType is a research project:
 - to improve communication
 - for individuals with speech & motor disabilities
- “KType for iPad” app:

First product developed with insights gained from the KType research project.



Who is KType for?

- KType is for individuals who **cannot verbally communicate** with ease or speed.
- KType is built to assist users who:
 - **cannot control or see** keyboard/mouse/LCD
 - may have **muscle spasms**, motor tics, paralysis
 - have **trouble reading**, writing, spelling

Who is KType for?

- KType can assist individuals with:
 - Motor Neuron Diseases such as ALS
 - Cerebral Palsy
 - Stroke
 - Autism
 - Neurological Trauma
 - Speech Disorders: Apraxia with Aphasia, Dysarthria

How can you help?

- Recommend users for case-studies
- Connect me with care organizations
 - Medical Centers (Trauma Units)
 - Nursing Home (Senior-Care facilities)
 - Special Education Schools
 - Associations (ALS Assoc., ASHA etc.)

How does KType work?

- “KType for iPad” app:
 - Accepts user input via **touchscreen** and physical **buttons** / switches
 - Speaks in realistic **male and female voices**
 - Guesses what the user is trying to type, minimizing the need to spell out each word

KType: Features

- Going beyond accessibility:
 - Built for **unsteady hands**
 - **Speak more** with less effort
 - Make **your own** keyboard
 - Customizable features

KType: Unsteady hands

- **PROBLEM:** Individuals with unsteady hands

find it difficult to:

- **Navigate** touch-screen interfaces
- Touch **precise locations** on the screen
- Operate keyboard and mouse on a regular PC

KType: Unsteady hands

- **SOLUTION:** Split the **Touch** action into two!
 1. **POINT:**
 - Move an on-screen **cursor** by touch
 - Optional: **Stabilize** the cursor's motion automatically
 2. **CLICK:**
 - By tapping touch-screen OR **wireless buttons** operated by hand/feet
 - Optional: Prevent accidental clicks by requiring **double** or **triple** taps

KType: Unsteady hands

POINT (like a mouse cursor)

CLICK (any key)



KType: Speak more

- PROBLEM:

Typing takes more effort than speaking.

How do we make typing easier?

KType: Speak more

- **SOLUTION:** Make typing easier by
 - Reducing movement of hands:
 - Rearrange keys so common sequences are closer
 - Enlarge commonly used keys / buttons
 - Anticipating the user's next action:
 - Type a few letters and KType suggests 3–7 words
 - Make suggestions based on the context

KType: Speak more

- **FUN FACT #1:**
 - Over 100,000 Twitter users indirectly helped create a keyboard layout that is **better than QWERTY** for users who press keys with one finger instead of typing with 10 fingers.

KType: Speak more

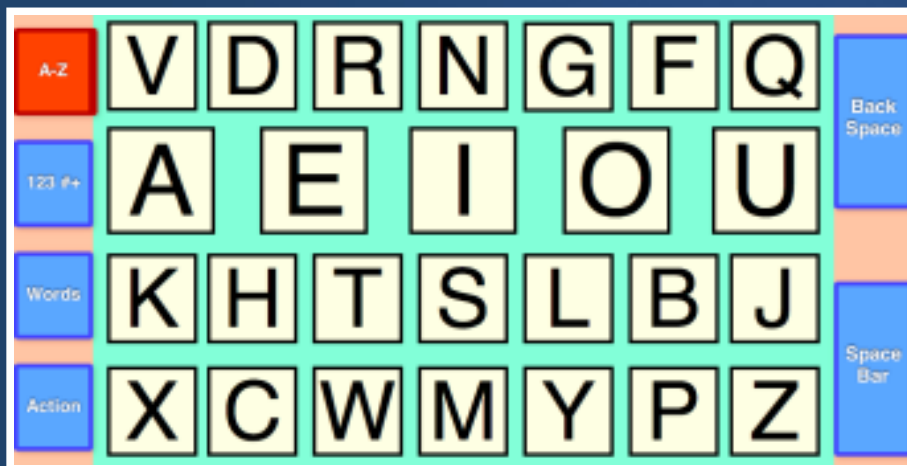
- **FUN FACT #2:**
 - Analysis of **10 Million Tweets** from Twitter helped create technology that can provide intelligent suggestions, not just spellcheck.
 - KType can instantly suggest:
 - “SOMEWHERE” when user types “SMW”
 - “HUNGRY” and “HOPING” after user types “I AM HN”
 - “POTTER” and “MET” after user types “HARRY”

KType: Your own keyboard

- Why rearrange the keyboard layout that has been in use for over a hundred years?
 - Because it is **not optimal** for use with 1 finger
 - QWERTY layout was designed in 1870s
 - It was optimized for typing with **10 fingers**
 - Commonly used letter sequences were purposely put in different rows to **minimize typewrite jams**

KType: Your own keyboard

- KType comes with the “Optimus” keyboard layout, optimized for 1-finger use by analyzing commonly typed sequences:

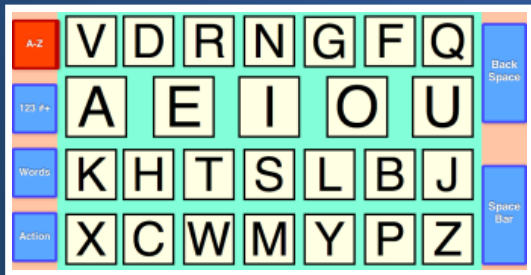


- TH, TE, TI
- ST, SL, SI
- CH, CK
- QU

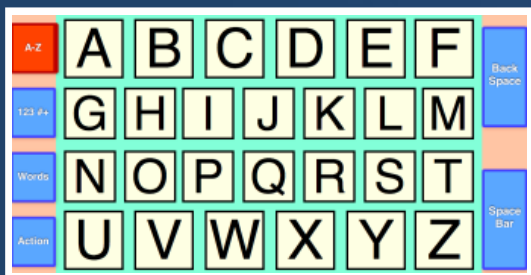
KType: Your own keyboard

- KType offers these preset layouts:

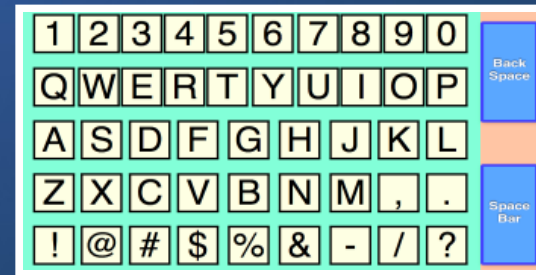
- **Optimus** by KType



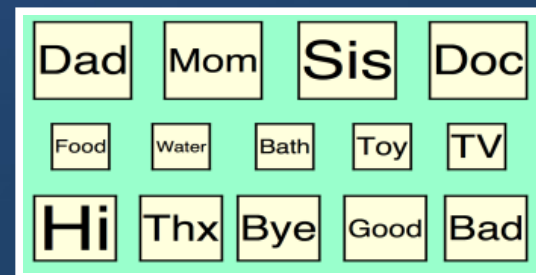
- **ABC** (easy to learn)



- **QWERTY** (computer)

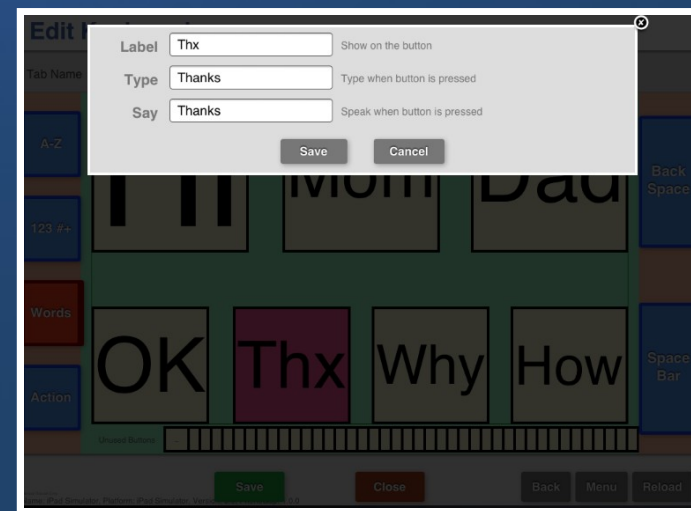
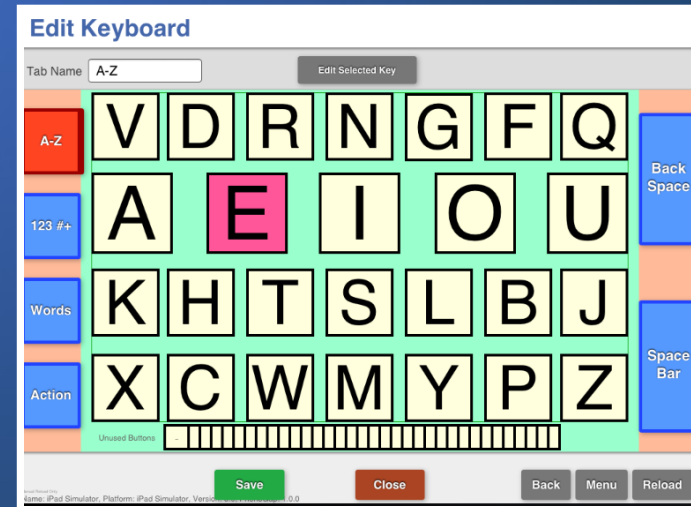


- **Common Words**



KType: Your own keyboard

- Fully editable:
 - Customize any keyboard layout
 - Drag & drop to resize & move keys
 - Fix pronunciation of non-English words



KType: Customizations

- KType can be tailored for **each user**:
 - **Change Voice**: gender, volume, pitch, speed
 - **Configure**: **Input and output** device parameters
 - **Design**: Keyboard layout and button text
- Supports **10 different** users on a single iPad

KType: On the Roadmap

- Send **Email**, Text/SMS, Tweets
- Add **pictures & sound** to keyboard buttons
- Automatically **learn** users' typing patterns
- **Listen** to Facebook updates, news & web articles, and incoming emails

KType: On the Roadmap

- POINT using:
 - Joystick
 - WiiMote / Kinect3D
 - Eye / Gaze Tracking
 - Head Tracking
- CLICK using:
 - Sip/Puff Switch
 - WiiFit Pad
 - iPod Touch
 - Ribbon Switch

Thank You



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