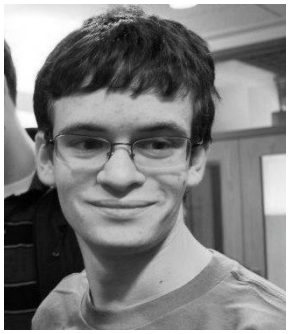
Group 27

Prerak Patel



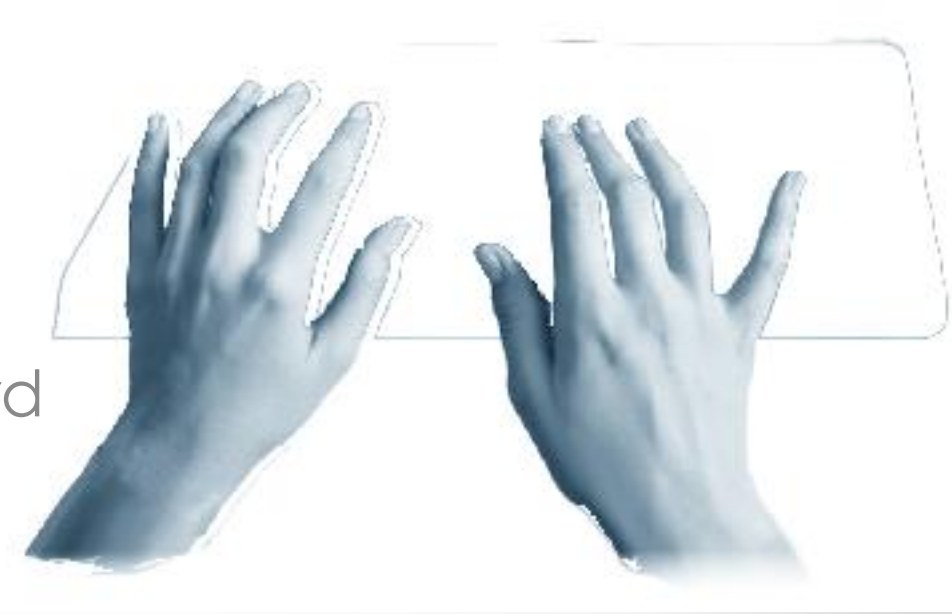
Ben Wasserman

Dev Gurjar

Daniel Jacobs

Twerty

The next generation keyboard minus the board



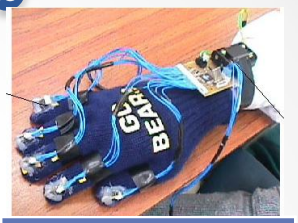
Project Concept & Motivation

- Problem
  - Today, users of tablets are forced to either use **onscreen keyboards** that ***consume valuable screen real-estate*** or **physical keyboards** that ***lack portability***

- Solution
  - *Twerty* provides a **portable, space efficient alternative to keyboards for people using tablets**.
  - Our prototype uses gloves outfitted with sensors that:
    - detect key strokes
    - communicate via Bluetooth
    - provide tactile feedback

Competitive Analysis



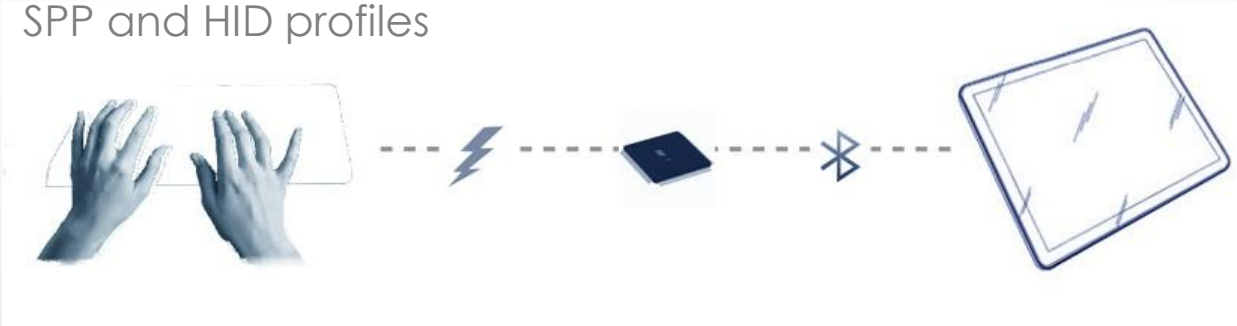
	Twerty	The Magic Cube	Keyglove Wearable Input Device	Acceleration Sensing Glove
Keyboard Functionality	●	●	●	
QWERTY Layout	●	●		
Tactile Feedback	●			
Portable and Space Efficient	●	●	●	
Self-Contained	●		●	
Comfort	●	●		
Multi-surface	●			
Market Price	Research Product	$170	Research Product	Research Product

Requirements

- Functional
  - Tactile Feedback – Feel the press of a button with each keystroke
  - Platform Independence – Connect via Bluetooth to any Tablet or Phone
  - Accurate Typing – Built it Probabilistic Autocorrect for typing accuracy
- Non-Functional
  - Typing speed
    - >40 wpm (average typing speed of iPad)
  - Multi-surface
  - Learning curve
    - 30 second rule

Technical Specifications

- Hardware (per glove)
  - Atmel AVR 128RF 16MHz , 38GPIO, ZigBee Wireless
  - 5x Flex Sensors
  - 3-Axis Accelerometer
  - 5x Buttons
  - Bluetooth Modem (only on one glove)
- Software
  - Probabilistic Autocorrect
  - Android Keyboard App
- Protocols
  - Bluetooth Stack
    - SPP and HID profiles



Architecture

Risks & Mitigation

Risk	Mitigation
Users may forget QWERTY keyboard layout	Provide a key map image for users to type on to remove anxiety about forgetting key layout
Users may not follow “standard” typing methods	Use accelerometers to detect when hands are moved from the home row, to detect when keys should be offset
Data from the gloves may not uniquely identify the key pressed	Use a Probabilistic Autocorrect to detect errors in key input

Questions?