

Project #	Project Name	Project Track	Project Family
P10003	Dynamic Keyboard P2	Biomed. Sys. & Devices	Assistive Devices
Start Term	Team Guide	Project Sponsor	Doc. Revision
2009-1	Prof. George Slack	NTID	1

Project Description

Project Background:

During the act of speaking and signing, the integration of thought and emotion occurs simultaneously and seamlessly with little overt thought. In contrast, text entry differentiates or separates thought and associated emotion. The keyboard only captures key strokes and thus loses emotional expression, even though the act of typing may carry some covert emotions. The goal of this project is to take these learned skills of speaking and signing and use them to enable us to enrich the value of text entry.

The original intent of the project, was to have emotion read and deciphered automatically through force applied during typing. It was shown however, that there is little correlation between emotion and typing force for the user. Alternatively, the application of emotion into typing can be applied as a learned skill. Intentionally altering the force applied while typing to portray the desired emotion.

Problem Statement:

Provide a means to portray emotion through typing by analyzing key strike dynamics. Integrate this functionality into a complete keyboard.

Objectives/Scope:

1. Provide a means to portray emotion through typing
2. Integration into a durable, complete keyboard
3. Transmit applicable data through a single standard PC connection

Deliverables:

- A precise emotion differentiation system
- Mechanical & electrical diagrams
- A functioning prototype

Expected Project Benefits:

Provide an open source system with the capability to differentiate numerous different levels of force applied to important keys. These different levels of force can then be used to provide an alternate functionality to the key sets. Provide the Phase III group with the tools needed to integrate the system into a PC and analyze the data to be applied to emotion selection or other functions.

Core Team Members:

- Adam Stull
- Joshua Locke
- Robert Piccirillo
- Obadiah Pulscher

Strategy & Approach

Assumptions & Constraints:

1. A- Human emotion may be translated through learned variations in typing force.
2. A- Humans have the dexterity to apply measurable force variations consistently.
3. C- Maintain standard PC connections.
4. C- Budget of \$1090
5. C- Customer satisfied

Issues & Risks:

- Lead time on custom force sensor matrix.
- Customer satisfaction with learned device.
- Customer satisfaction with "feel" of keyboard (how the keys feel/respond while typing).
- Key stroke differentiation