

Instant Messaging on Handhelds: Affective Feedback

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Abstract - A text only Instant Messaging (IM) built on the IETF open standard SIP/SIMPLE has been developed in line with our proposed introduction of a user-defined text Hotkey feature. These act as an on-click Affective Gesture (AG): in similitude to Face-to-Face (F2F) expressive gesture-like abilities. Given that text communication possesses expressive discourse with some presence level, we seek to show that one-click text-gesture fast-tracking enhances text communication further. For this study, we are taking a hybrid quantitative and qualitative approach. Initial Pre-trial results have shown that an AG approach is more likely to improve IM chat spontaneity/response rate. Further experimental trials are being undertaken. Mobile devices and networks are becoming more data-centric (evident in Japanese I-mode) even as mobile network voice Average Revenue Per User (ARPU) are declining, new stream of data services are required which must take cognisance of handhelds features albeit their small screen estate and input/output limitation. Given that IM is entrenched in the social space, especially among teenagers and gaining wide adoption in the business place, we believe extensions are required for IM steep uptake in the mobile world, much as SMS has gained prominence. Enhanced input mechanisms for handheld IM system are expected to increase co-presence between handheld users and their desktop-based counterparts while in a synchronous discussion.

Index Terms— Affective Gesture, Fast-tracking, Instant Messaging, Wireless handheld.

I. INTRODUCTION

WE have developed a text only Instant Messaging (IM) built on the IETF open standard SIP/SIMPLE. This is in line with our proposed introduction of a user-defined Hotkey feature. These text hotkey and emoticons acts as an on-click Affective Gesture AG, which is in similitude with Face-to-Face (F2F) expressive instant gesture-like abilities. Drawing on the premise that text communication possesses expressive discourse with some presence level (co-presence) [1], we seek to show that one-click AG fast-tracking of both text hotkey and 2D emoticons enhances text communication further. IM co-presence [3, 4] capabilities are entrenched in its text oratory expressive discourse, awareness and limited turn-taking and sequencing.

For this study, we have taken a hybrid quantitative and qualitative approach. Quantitative instances of Hotkeys

usage will be counted from both the server and client side logging instrumented into the IM coding, while Pre and Post study questionnaire will be used to collate users' usability and usage feedback.

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Despite IM improvement on the limitations of traditional text communication (gestures, awareness, turn taking, sequencing), it requires further add-on features and capabilities [4, 6]. Moreover, it needs standardisation and deployment in an open protocol environment such as Session Initiation Protocol (SIP) [2] much as SMS have been standardised. IM has been moving to the mobile domain [9, 11] in line with increasing trend of mobile devices becoming data-centric. This added to the backdrop of declining mobile network voice Average Revenue Per User (ARPU) makes it essential for operators to look into ways of harnessing higher ARPU from IM as one of its data revenue drawing from the success of SMS especially in Europe. To this end, there is a need for facilitated gesture input in an interactive IM chat on handhelds. IM extends SMS further with its quasi-synchronous capability and other co-presence offerings: A trend that has followed the evolution of text messaging [6] from asynchronous to synchronous IM [7, 9, 10], which is a that of being interactive and co-presence centric. SMS, though widely available and established, suffers from its asynchronous nature.

Coupled with IM co-presence [3, 5] and open environment, we expect to demonstrate that the AG approach is more likely to improve IM chat spontaneity. Work in similar domain has been on closed systems [7, 11]. These should help enhance IM conversation to being more interactive, like a gestured voice chat does.

II. DEVELOPMENT

We draw on the premise that text communication possesses expressive discourse with some co-presence level [1], to show that one-click AG fast tracking of both text hotkey and 2D emoticons enhances text communication further. A text only IM was built on the IETF open standard SIP/SIMPLE [2] using Microsoft Real-time Communication Libraries. SIP platform was chosen because SIMPLE extends SIP for IM session in two modes: Page and session. In session mode, SIP handles the rendezvous and hand over transfer to the Message Session Relay Protocol (MSRP).

The user-defined text Hotkeys shown in Figure 1 and the Emoticons used for expressive gesturing in IM and SMS were implemented as on-click and on_keypress events to provide AG fast-track feedback. Event driven IsComposing

progress trackers allows other parties to know who is composing a messaging, thereby enhancing turn taking in a conversation. Similar concepts such as handset speed dialing or clickable menu items in event driven programs have proved effective. The area of importance is the gesture enhancement made to an IM chat on a limited input entry, small screen space handheld and not how effective IM measures against real F2F or audio discussion.



Figure 1: The Affective Gesture SIP UA
The AG Feedback IM: Text chat on handheld showing the User-defined Affective Gesture Hotkeys.

Awareness is implemented by a buddy list on the main window. For this research, we state that online presence (Awareness) relates to who is or is not online in the IM social space [5]. Presence indicators are indications of what interlocutors' actions are, such as IsTyping.

The mobile network consists of a WLAN hotspot (as a proxy for 3G MobileIP). 3G deployment is on track in South Africa with the proposed trial run by Vodacom (http://www.cellular.co.za/news_2004/june/062704-vodacom_south_africa_to_trial_3g.htm).

III. EXPERIMENTATION

A. Experimentation

For this study, we have taken a hybrid quantitative and qualitative approach. In the quantitative Conversational Analysis CA, instances of Hotkeys usage will be counted from both the server and client side logging instrumented into the IM coding. Pre and Post study questionnaire will be used to collate users usability and usage feedback.

B. Initial Result

Pre-trial questionnaire results have shown that an AG approach is more likely to improve IM chat spontaneity. 50% of respondent affirm to AG text hotkey "Definitely will", while 25% were not sure. When asked if AG emoticon will enhance, 41.67 affirmed, "Definitely will" while none said, "Will not" but interestingly 16.67 will still prefer their emoticon remain AS IS.

C. Future Work

Results from further experimental trials will help us in drawing a much better conclusion. Ten participants will take part in a free form and structured chat session after which they will fill the Post-chat questionnaire.

Intelligent agent (bots) UA would be implemented as

Distribution list and chat room for participant to engage in. The text hotkey would be profiled allowing for three profiles: Personal, Official, and Family.

IV. CONCLUSION

From the pre-trial questionnaire, we found that AG approach is more likely to improve IM chat spontaneity/response rate. Enhanced input mechanisms for handheld IM system are expected to increase co-presence between handheld users and their desktop-based counterparts while in a synchronous discussion. We are hoping that AG text Hotkey will give chat users immediate response (synchronous affective feedback) capability. In similar fashion, we believe, traditionally handling of emoticons, as in-line entry should rather be AG. Further uptake of IM on handheld is expected to help generate more revenue greater than what SMS is doing at the moment.

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