**DogEm Messenger Function Research**

**What is the DogEm Messaging Function?**

The DogEm messaging function is a major functionality of the DogEm app which facilitates repeated messaging of a user’s contacts via sms and email.

**How does it work?**

The user enters a series of contacts’ email addresses and phone numbers as well as a message they wish to send their contacts. Upon selecting the “Send Message” button, DogEm opens their device’s default messaging app (iMessage for iOS and Messages for Android) and automatically fills the message body with their selected message and the contact information with the contact emails and phone numbers they entered. Once they hit the “send” button on the new message DogEm opened, the contacts will be messaged via their email addresses (emails) and phone numbers (sms) for a specified interval (currently we allow 500 messages to 10 different contacts). After sending the initial message, DogEm will re-open their default messaging app again and automatically fill the contact field and sms body field with the contact information and message they entered. It is important to note that after entering their contacts’ information and message then selecting the “Send Message” button, all the user has to do for repeated messaging is repeatedly hit the send button.

**Semi-Automated vs. Fully Automated:**

A major obstacle we encountered was the inability to programmatically send sms messages via iMessage. To compensate for this, we chose to take a semi-automated approach. The automated component is the app’s ability to repeatedly fill the message body of the sms message, which eliminates the requirement for the user to copy/paste their message for each send operation. The required user interaction is hitting the send button for each message. By choosing this approach, we save the user 2 keystrokes per message which halves the time required to send batches of messages (see the section below for figures).

**Why use the DogEm Messenger Function in Favor of Your Device’s Messaging Capability? – Timing and Keystroke Comparison**

Android and iOS Messaging (240 MMS messages)

Initial Action: Enter contacts’ emails and phone numbers, as well as filling in the text field with their message. Then click on the send button. (5-30 seconds)

Subsequent actions:

1. Copy the message you wish to send contacts (single press, then another press for “select all”, then another press for “copy” x3 seconds)
2. For each message, the user must press into the text field (single press) then select paste (single press) then hit send (single press) (x3 seconds \* 239)

Total keystrokes required: Initial (5-30 seconds for the first message, keystroke number is unknown) + copy operation (3 \* 1) + repeated messaging (3 \* 239) = 725 to 747 seconds total.

DogEm Messaging (240 MMS messages)

Initial Action: Enter contacts’ emails and phone numbers, as well as filling in the text field with their message. Then click on the “Send Message” button. Then a new MMS opens with the fields filled and the user hits the send button. (5-30 seconds, additional 1 second for hitting the second send button)

Subsequent action: Repeatedly hit the send button. The sms body automatically re-fills, so the paste operation is not required. (1 second per messaging action)

Total keystrokes required: Initial (5-30 seconds + 1 for the first message, keystroke number is unknown) + (239 \* 1) = 245 to 270 seconds total.

For the repeated messaging function, DogEm messenger requires 1/3 of the keystrokes and therefore roughly 1/3 of the time.

**Rationale for Choosing the current Implementation of the DogEm Messenger Function: DogEm Messaging vs. Twilio vs. Other Third Parties vs. Creating a Mail Server vs. JS mailto**

* We wanted to ride on the user’s system rather than using a mail server. This decision means that we can capitalize on the fact that the overwhelming majority of phone carries utilize an sms to email gateway, meaning we can send both sms and email messages to multiple contacts reliably and simultaneously.
* By riding on the user’s system, we can ensure that users are limited by their OWN system rather than OURS (elaborate on this: iMessage lets you send more messages than third party services and other stuff)
* By using expo-sms we ensure that the messaging function is completely free for free-tier users.