Estrich Declaration

Exhibit 22

Browser Zooming Methods UX Exploration Study

Samsung Telecommunications America | User Experience

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Highly Confidential – Attorneys' Eyes Only

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INTRODUCTION / Objectives

Evaluate perception of usability of 3 different design concepts of zooming for browser.

This is an impromptu study of browser zooming method based on an email discussion with STA Verizon Account Team.

The goal is to gather perception of usability and preference of 3 different zooming approaches using the current zooming user interface design in u960 browser as benchmark.

To gain quick access to the subjects used in another study, paper prototypes were used in this study. Different zooming paradigms were illustrated using paper prototypes depicting the interaction flow and user experience of zooming a web page.

Subjects gained understanding of the pros and cons of each paradigm without working prototypes or device of each approach. The experience was not tainted by possible bias of software or hardware design and implementation issues (e.g., variation of performance and look-and-feel across different browsers in different devices).

INTRODUCTION / Schedule

Sun	Mon	Tue	Wed	Thu	Fri	Sat
3/29	30	31	4/1	2	3	4
5	6	7	8	9	10	11
12	13	14	15	16	17	18
19	20	21	22	23	24	25
26	27	28	29	30		

On 14/15: Gist | STA UX Performed Test

INTRODUCTION / Process

I Initiation	**D** Design of Experiment	**E** Execution of User Test	**A** Analysis of Data

Goal Initiation	Experiment Plan	Test Execution	Report & Recommendation
STA Verizon Account Team	STA UX	Gist Design / STA UX	STA UX
Browser Zooming Issues	Rapid Design	Zooming Interaction	Analysis, Report
Browser Best Practices	Stimuli Preparation	Paper Prototyping	Recommendation

INTRODUCTION/ Limitation of Exploratory Study

Disclaimer : Results should not be interpreted as preference of heavy mobile internet users because of the samples used.

• The results of this report are subject to the following limitations:

  - No working prototypes : Paper prototyping has limitation on expression of dynamic interaction of zooming concepts.

  - "Inpromptu" samples drawn from messaging device usability studies did not correspond to mobile internet users.

  - Qualitative data results and interpretations : No statistical analysis was conducted as the results could not misleading because of the above reasons

INTRODUCTION / Test Participants

9 subjects

- Impromptu study "piggy-backed" on usability study of messaging devices for speed and convenience.
- Screened originally for heavy messaging users looking for QWERTY devices
- Most respondents DID NOT engage in mobile internet browsing
- NOT representative of heavy mobile internet users
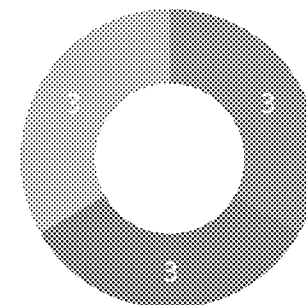- Directional indicator from perspectives of naïve/novice/occasional mobile internet users

Gender	Age	Device Type
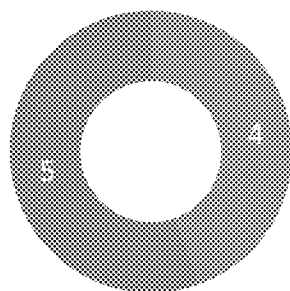
male
female
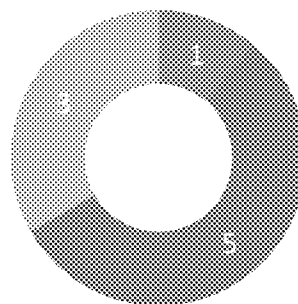
under 20
20-30
over 30

Touch
QWERTY (non touch)
Feature Phone (DTMF keys)

INTRODUCTION / Method

Zooming Experience Walkthrough + Selection of Preferred Zooming Method

The test session consist of the following steps:

- Moderator walked through 4 different methods of zooming. The baseline used was the interaction design in the current u960 browser.
- Respondents would select their most and least preferred methods of zooming based on the user interface flow presented.
- Respondents would then select their most preferred zooming methods with the "double tap" method used as supplementary zooming method.

Task 1

Most and Least preferred Zooming Method

- Moderator showed interaction flow scenarios of each zooming method with renderings using same visual design (modeled after u960 browser).

- Subjects selected their most and least preferred zooming method and explained their choices.

Task 2

Zooming Method with Double-Tap as Supplement

- Moderator announced that the Double-Tap Zooming Method will be available as a supplement and asked subjects to select their most preferred zooming method to couple with it.

- Subjects selected their most preferred zooming method and explained their choices.

TASK MATERIAL/ Paper Prototypes of Zooming (baseline interaction flow)

Touch show/hide menu bar icon

Touch Zoom icon on menu bar
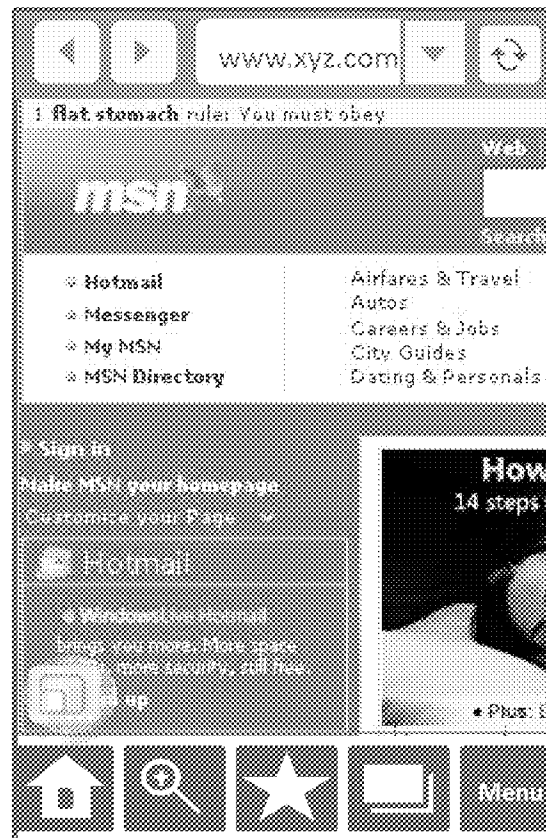
Touch and/or drag zoom controls to zoom in

Baseline Zooming Method

- The browser layout and visual design was based on the Samsung u960 for Verizon (Browser Version 6.1 VEN)
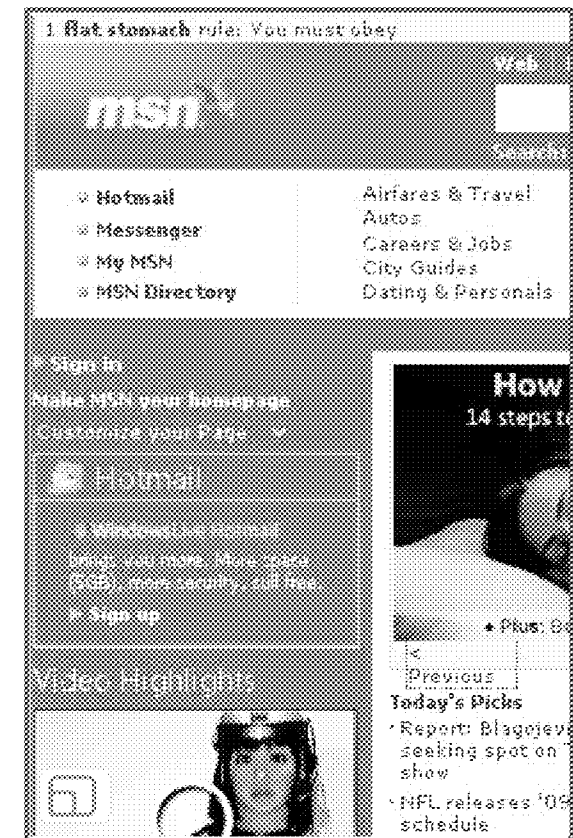
TASK MATERIAL/ Paper Prototypes of Zooming (baseline interaction flow)
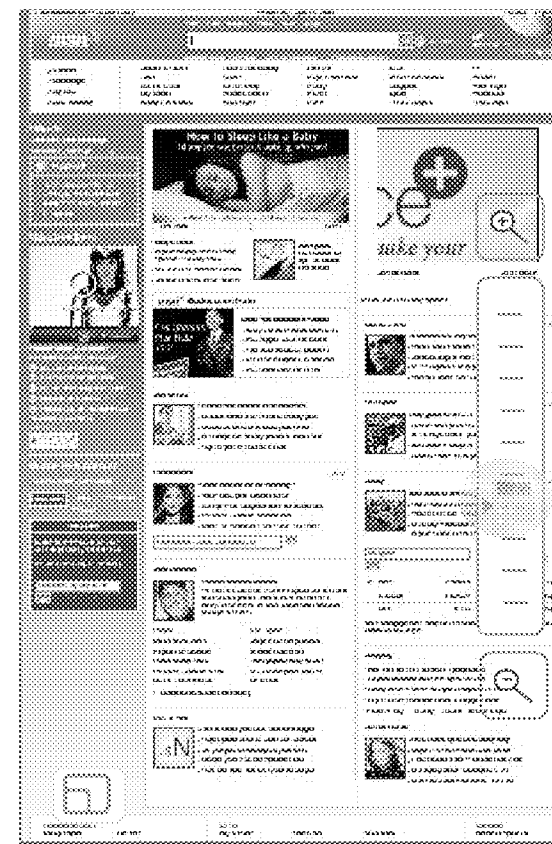

Zoom controls times out

Touch hide/show menu bar to full screen browsing

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TASK MATERIAL/ Paper Prototypes of Zooming (Design Variant u960)

Touch zoom icon during full screen browsing

Zoom controls appear above the zoom icon. Touch or drag zoom controls to zoom in.
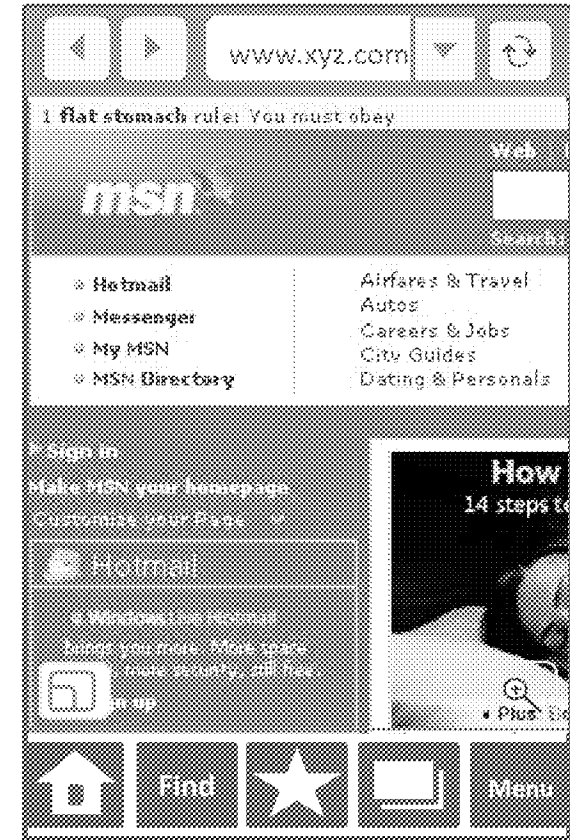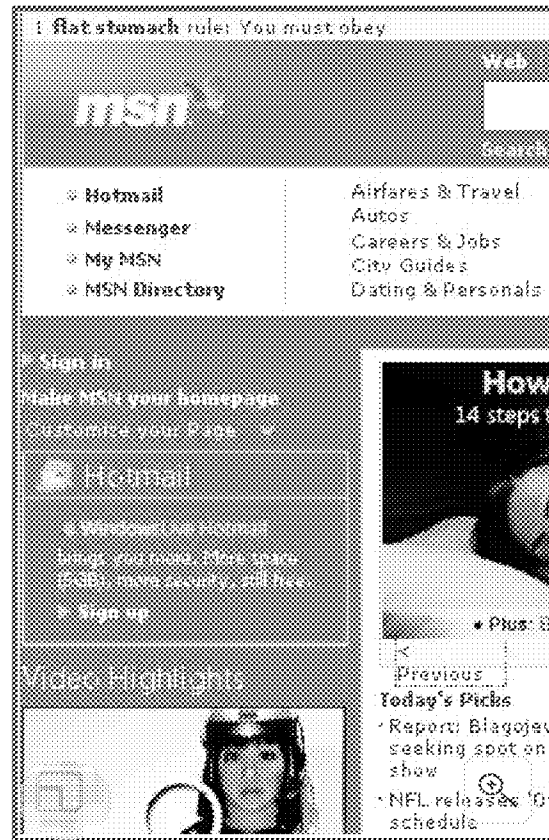
Design Variant u960

- The design variant was initially proposed by STA UX in an email to STA Verizon Account team April 14, 2009.

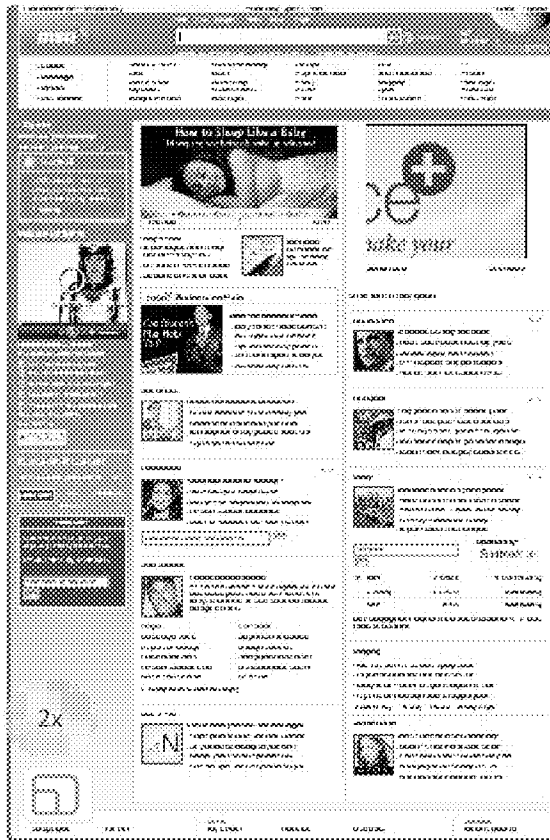## TASK MATERIAL/ Paper Prototypes of Zooming (Design Variant u960)
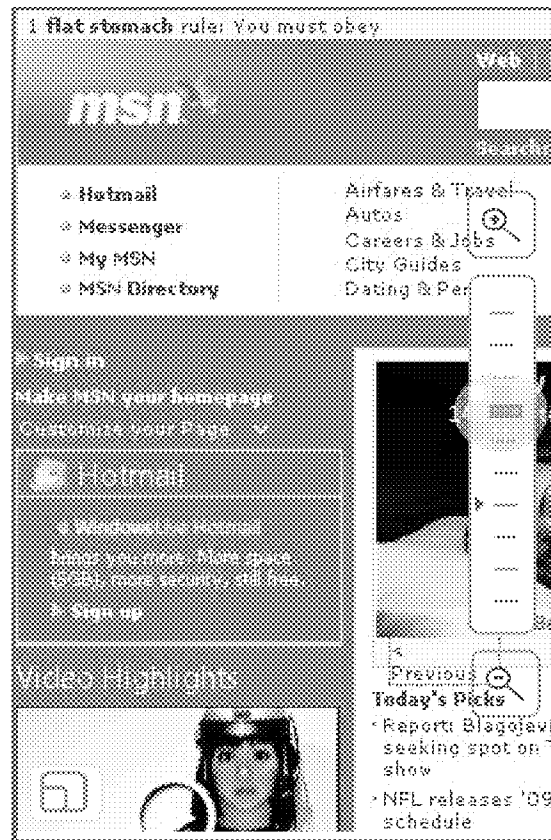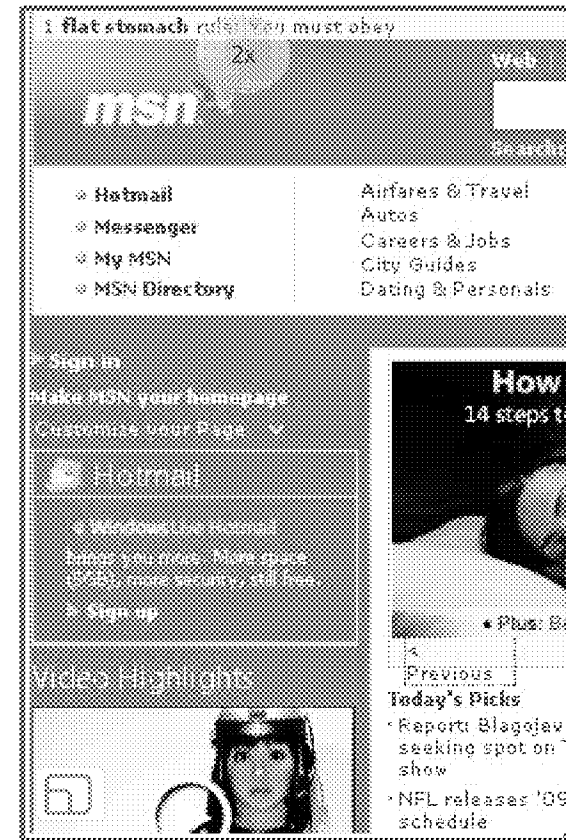

Zoom control times out

Search/Find can be substituted in lieu of zoom in menu bar

TASK MATERIAL/ Paper Prototypes of Zooming (Doublet-Tap)

Double Tap to zoom in

Double Tap again to zoom out

Double Tap

- Double tap is being used in some commercial mobile browsers (e.g., Apple iphone Safari).

TASK MATERIAL/ Paper Prototypes of Zooming (Doublet-Tap)

Touch show/hide menu bar
icon to show menu

Regular zoom can be
accessed from menu bar

TASK MATERIAL/ Paper Prototypes of Zooming (TouchWiz Zooming)
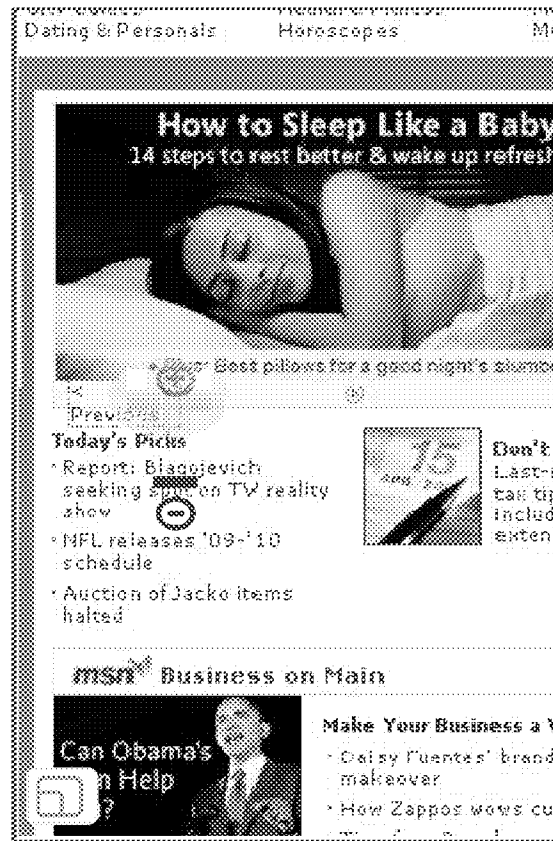

Touch and hold target area

Zoom control will appear

TouchWiz Zooming

- based on the design in UI guideline (TouchWiz Zoom interaction UI) V1.1 (2009.03.12) from Samsung Mobile User Interface Team. The interaction was simplified by not including the additional popup window in the original design.

TASK MATERIAL/ Paper Prototypes of Zooming (TouchWiz Zooming)
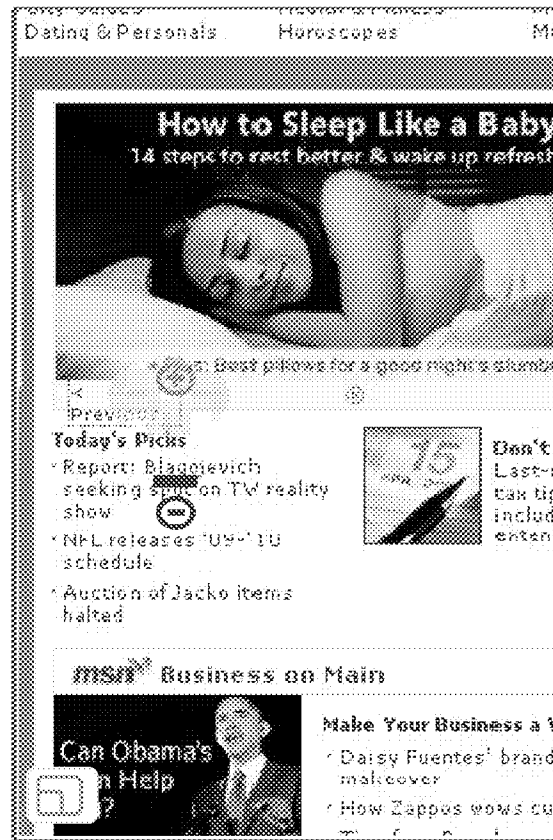

Drag up to zoom in
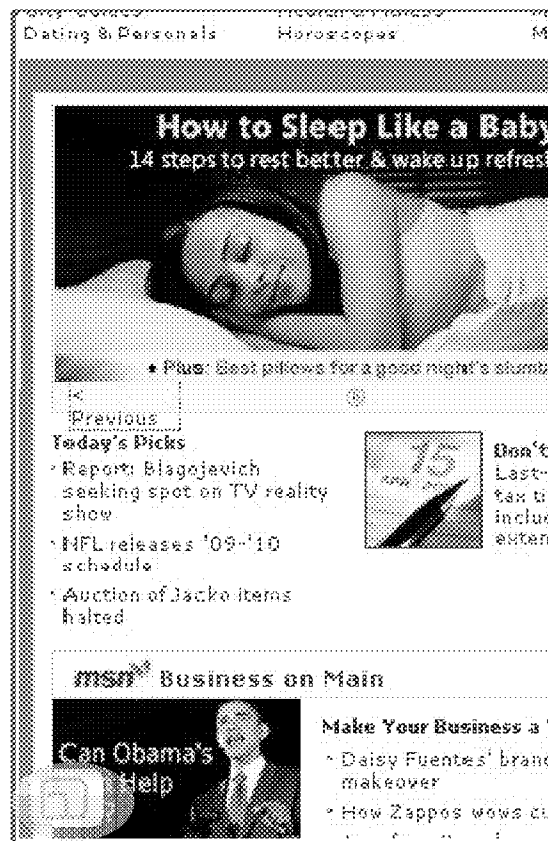
Zoom control times out

Touch Zoom icon on menu bar

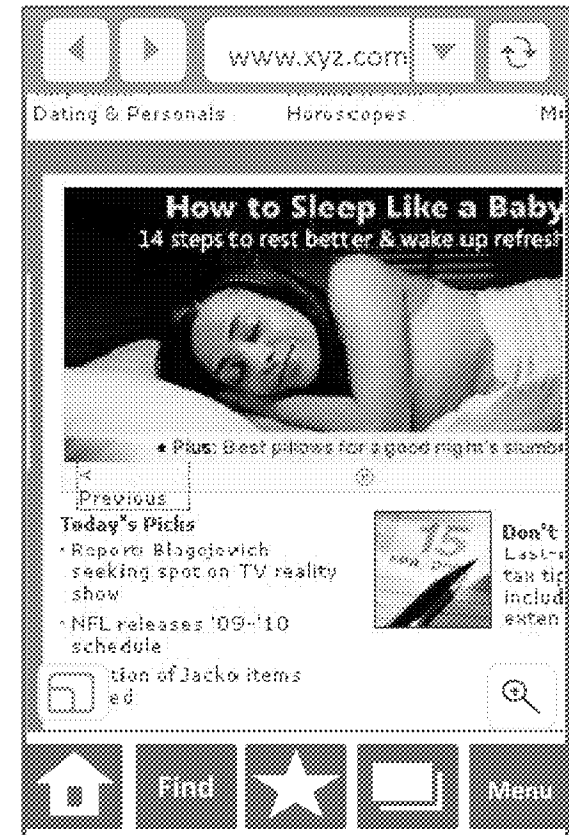Search/Find can be substituted in lieu of zoom in menu bar

TASK MATERIAL/ Paper Prototypes of Zooming (Doublet-Tap)

Drag up to zoom in

Zoom control times out

Touch Zoom icon on menu bar

Search/Find can be substituted in lieu of zoom in menu bar

Results

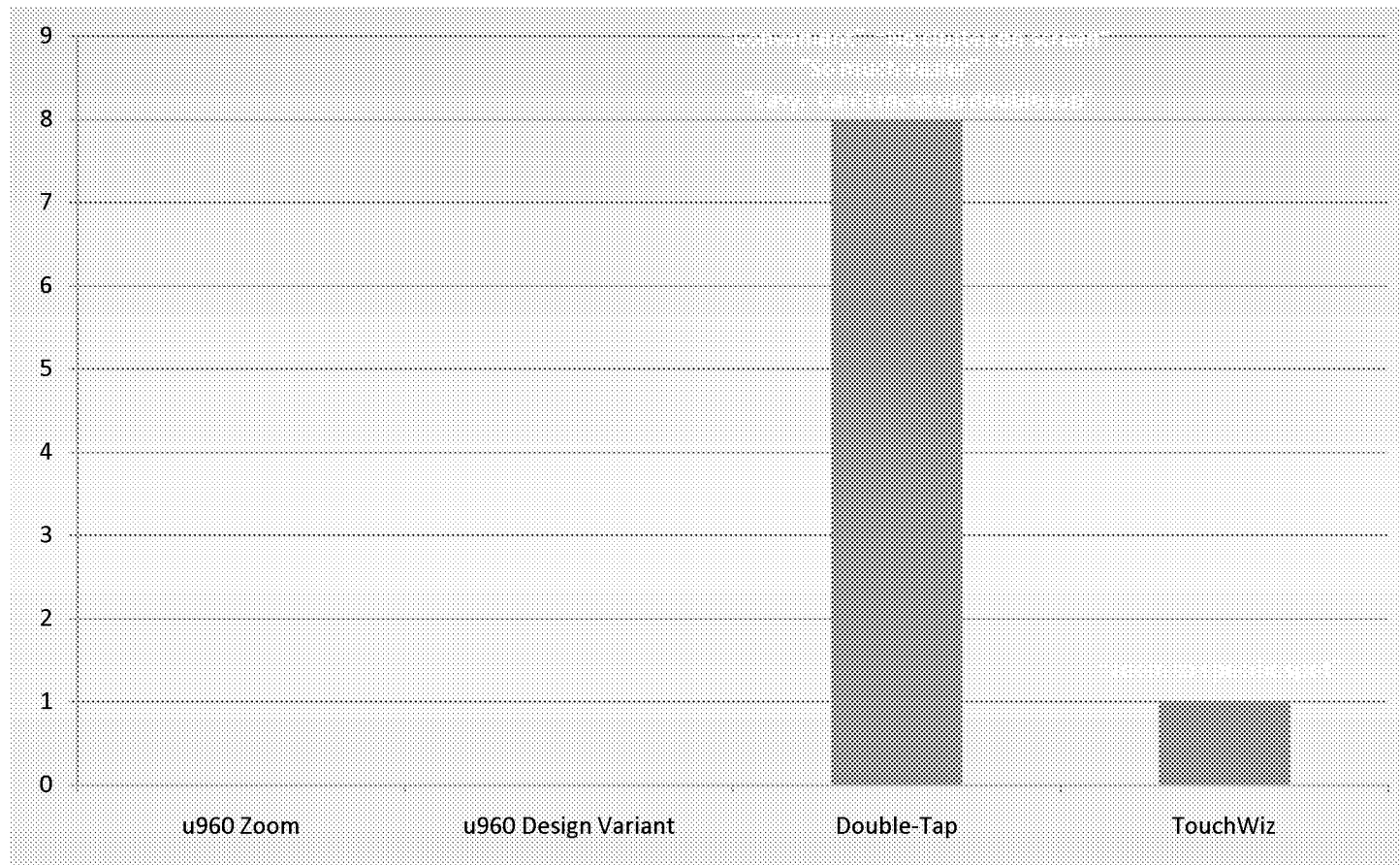## Preference Tasks

Task / Most Preferred Zooming Method

The most preferred method is "Double-Tap" Zooming (8 out of 9 respondents except the iphone respondent.)

Simplicity is the primary reason of the choice.
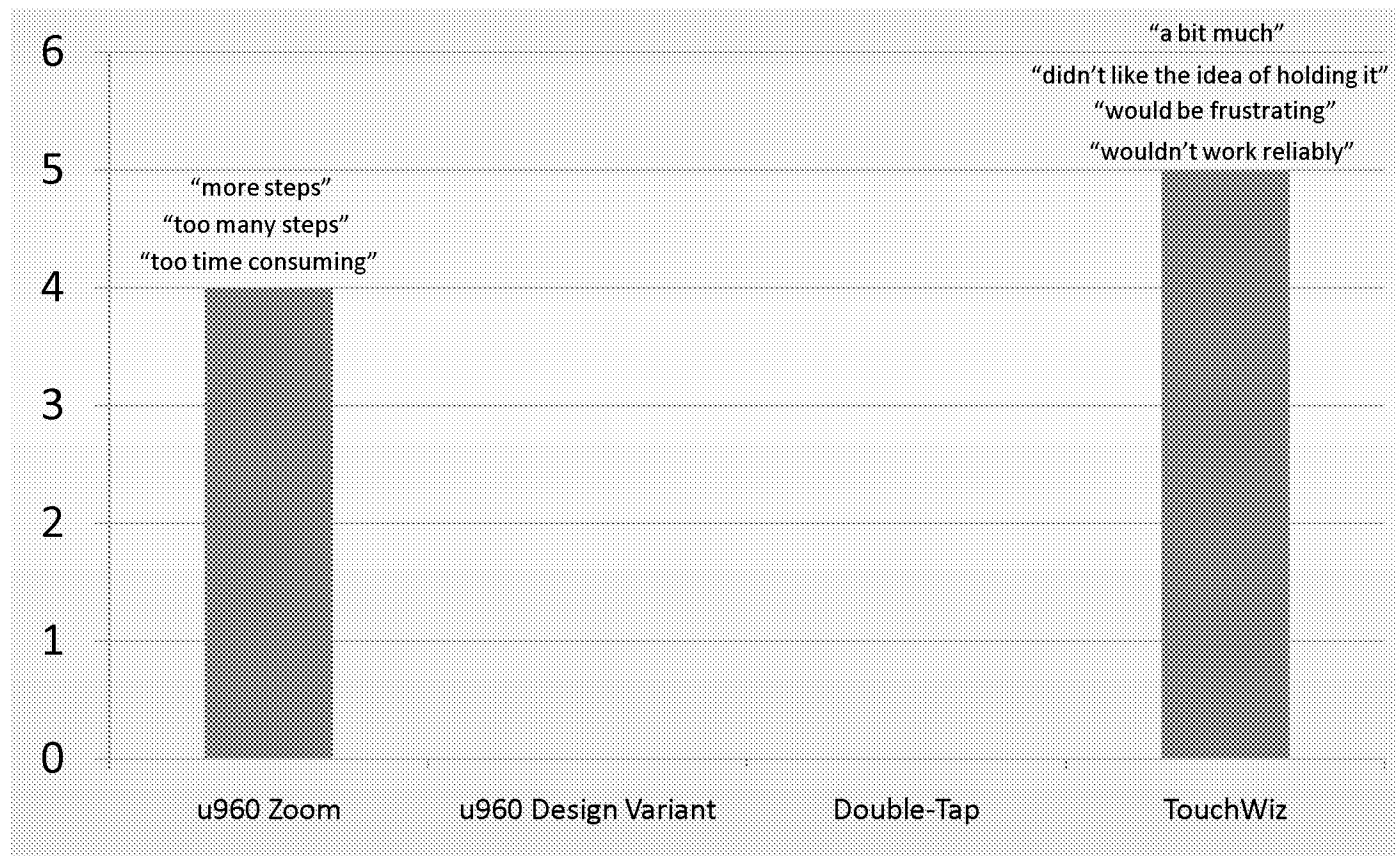
Task / Least Preferred Zooming Methods

The least preferred methods were split between u960 Browser and TouchWiz designs.

"Too many steps" was the primary reason for 960 browser zooming method.

Dislike of long press, perception of reliability issues and complicated interactions were reasons given to the TouchWiz zooming method.

Task / Most Preferred Zooming Method in Combination with Double-Tap

The most preferred method is the design variant of u960 Browser Zoom.

The reasons given were reduction of extra steps and a large and clear scale in zooming.
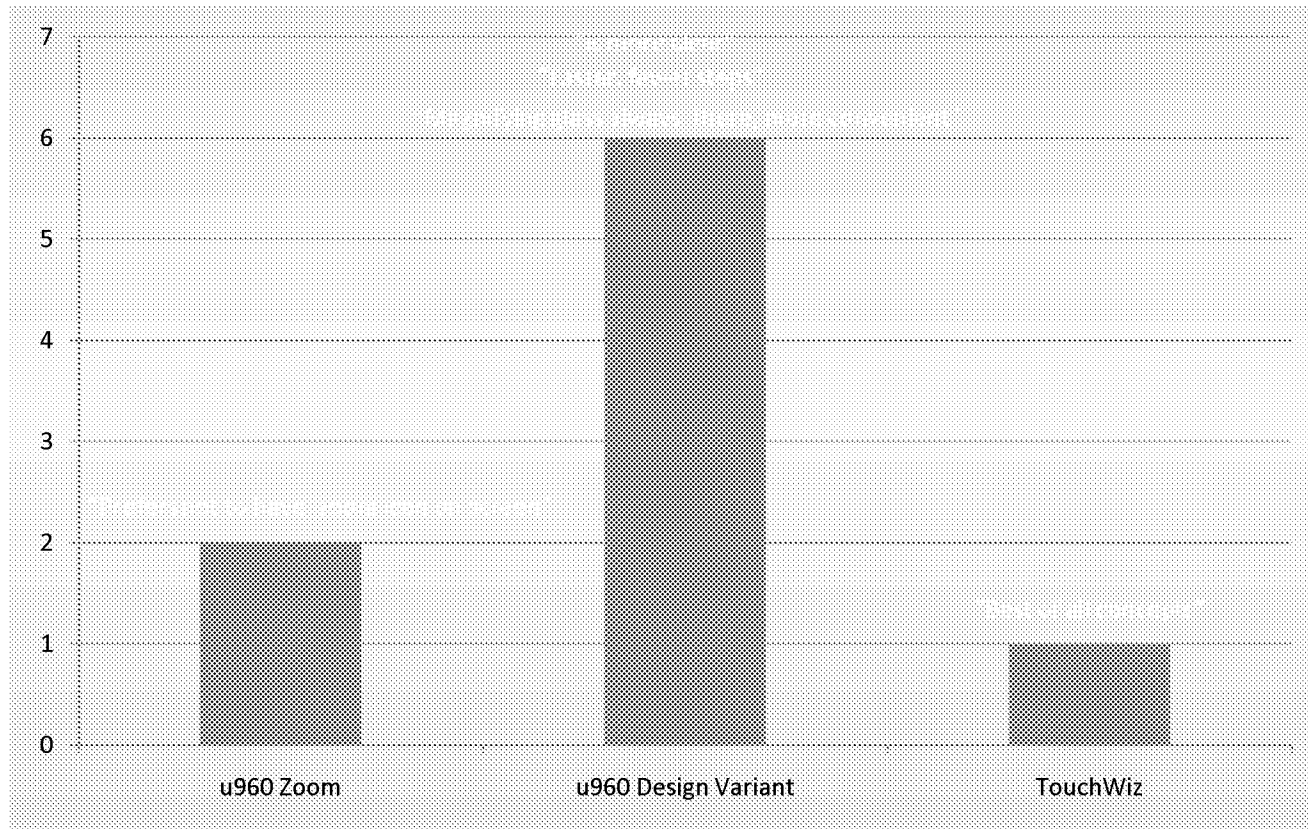
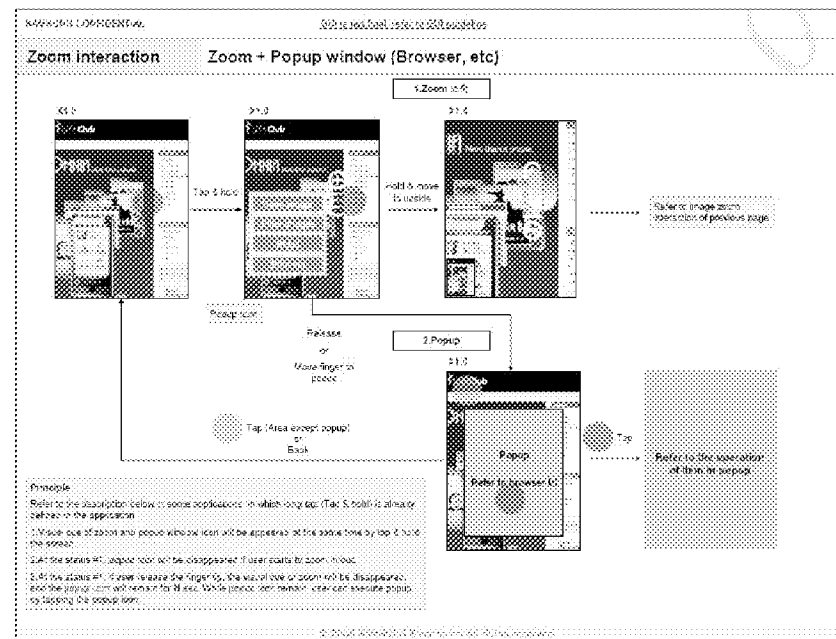# Design & Research Suggestions & Recommendations

Design & Research Recommendations / Suggestions

Conduct usability studies of different zooming approaches with heavy mobile internet users to determine the appeal of the concept to this segment.

STA UX hypothesizes that this concept will appeal more to experienced and heavy touch device users for mobile internet, especially users from Apple iphones.

Investigate in depth the usability and user experience of TouchWiz zooming for mobile internet users with working prototypes for real life results.

Design & Research Recommendations / Suggestions

Adopt Double-Tap as a supplementary zooming method for up to 2 levels of zooming and back to original in mass market touch devices. The UX of iphone can be used as a design benchmark.

Apply double-tap method consistently in other applications supporting zooming (e.g., camera zoom).
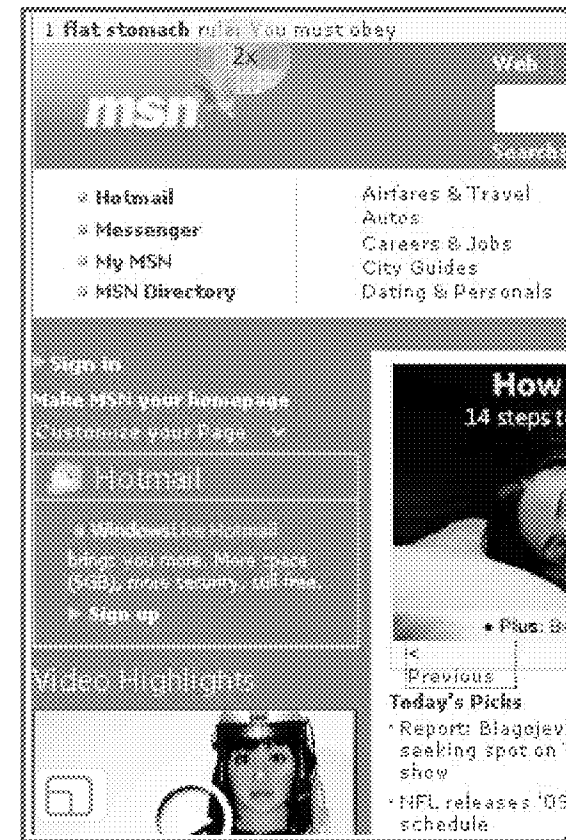
Design & Research Recommendations / Suggestions

Adopt the evolutionary design variant of u960 browser zoom to enable zooming with less steps in mainstream/mass market touch devices.

Extra touch buttons to control zoom in/out work great for beginning touch screen users.

Zoom control is clear with scale.

Find/Search can be substituted in lieu of zoom, which provides a quick access to web search.

Zoom is available in both full screen browsing and command bar mode