

Computer Aspect of HCI

Prototyping techniques

Prototyping and construction

- What is a prototype?
- Why prototype?
- Different kinds of prototyping
 - low fidelity
 - medium fidelity
 - high fidelity
- Compromises in prototyping
- Construction

What is a prototype?

In other design fields a prototype is a small-scale model:

- a miniature car

- a miniature building or town

What is a prototype?

In interaction design it can be (among other things):

- a series of screen sketches
- a storyboard, i.e. a cartoon-like series of scenes a Powerpoint slide show
- a video simulating the use of a system
- a piece of software with limited functionality written in the target language or in another language

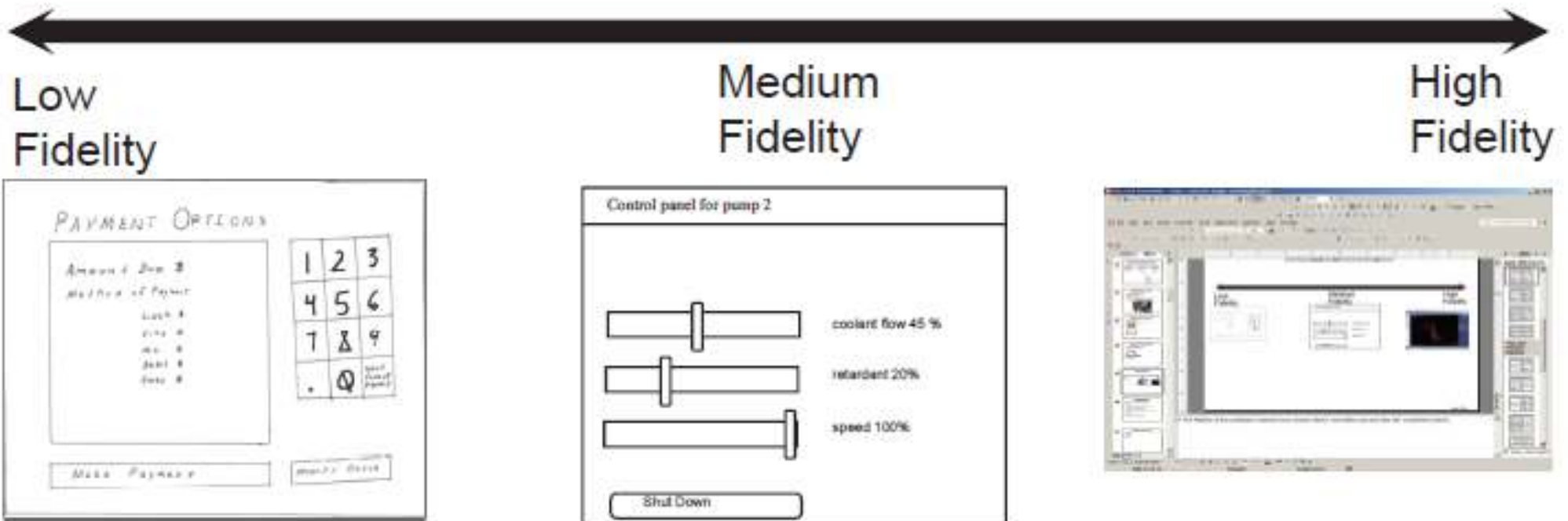
Why prototype?

- Evaluation and feedback are central to interaction design
- Users can see, hold, interact with a prototype more easily than a document or a drawing
- Team members can communicate effectively
- You can test out ideas for yourself
- Prototypes answer questions, and support designers in choosing between alternatives

What to prototype?

- Technical issues
- Work flow, task design
- Screen layouts and information display
- Difficult, controversial, critical areas

Prototyping Techniques



Low Fidelity Prototypes

- Hand drawn mockups of some design ideas
- Focus on:
 - Brainstorming as many ideas as possible (discount usability)
 - Making it clear enough to be understandable
- But don't focus on making it "pretty"
 - They are not computer generated images (don't use drawing programs to generate them)
- May be used to elicit feedback from the user

Types Of Low Fidelity Prototypes

- Sketches
- Storyboards

Low Fidelity Prototypes

- Sketches:

- A drawing of the high-level appearance of the intended system
- The crudity of the prototype means people concentrate on high level concepts
- It may be hard to envision the progression of a dialog
- Don't be inhibited about drawing ability. Practice simple symbols

Sketches

Screen 1: Initial order screen

THE HAPPY DUDE MENU					
BURGERS	FRIES	BEVERAGES			
BASIC MERRY BURGER \$1.50 (SINGLE BEEF PATTY)	SMIRLING SMALL FRIES \$0.75	POP (COKE, SPRITE OR ROOT BEER)	LITTLE GIGGLE SIZED \$0.20	MEDIUM CHUCKLE SIZED \$1.00	GREAT GUFFAW SIZED \$1.75
THE JOLLY BURGER \$2.25 (DOUBLE BEEF PATTY WITH LETTUCE & TOMATO)	MEDIUM GRINDER FRIES \$1.00	JUICE (APPLE, ORANGE OR CRANBERRY)	\$1.00	\$1.50	\$1.75
CLASSIC HAPPY BURGER \$2.75 (DOUBLE BEEF PATTY, SWISS CHEESE, LETTUCE & TOMATO)	LARGE SMILEY FRIES \$1.50	COFFEE (DECAF, REGULAR, STRONG OR INSOMNIAC)	\$0.75	\$1.00	\$1.25
THE ELSTATIC BURGER \$3.50 (A TRIPLE DECKER BURGER DRIPPING WITH SWISS CHEESE, LETTUCE & TOMATOES)	SUPER LARGE SMILEY FRIES \$1.75	TEA (HOT OR ICE)	\$0.75	\$1.00	\$1.25

Sketches (2)

Screen 2: Payment screen

PAYMENT OPTIONS

Amount Due \$	
Method of Payment	
Cash \$	
Visa \$	
MC \$	
Debit \$	
Amex \$	

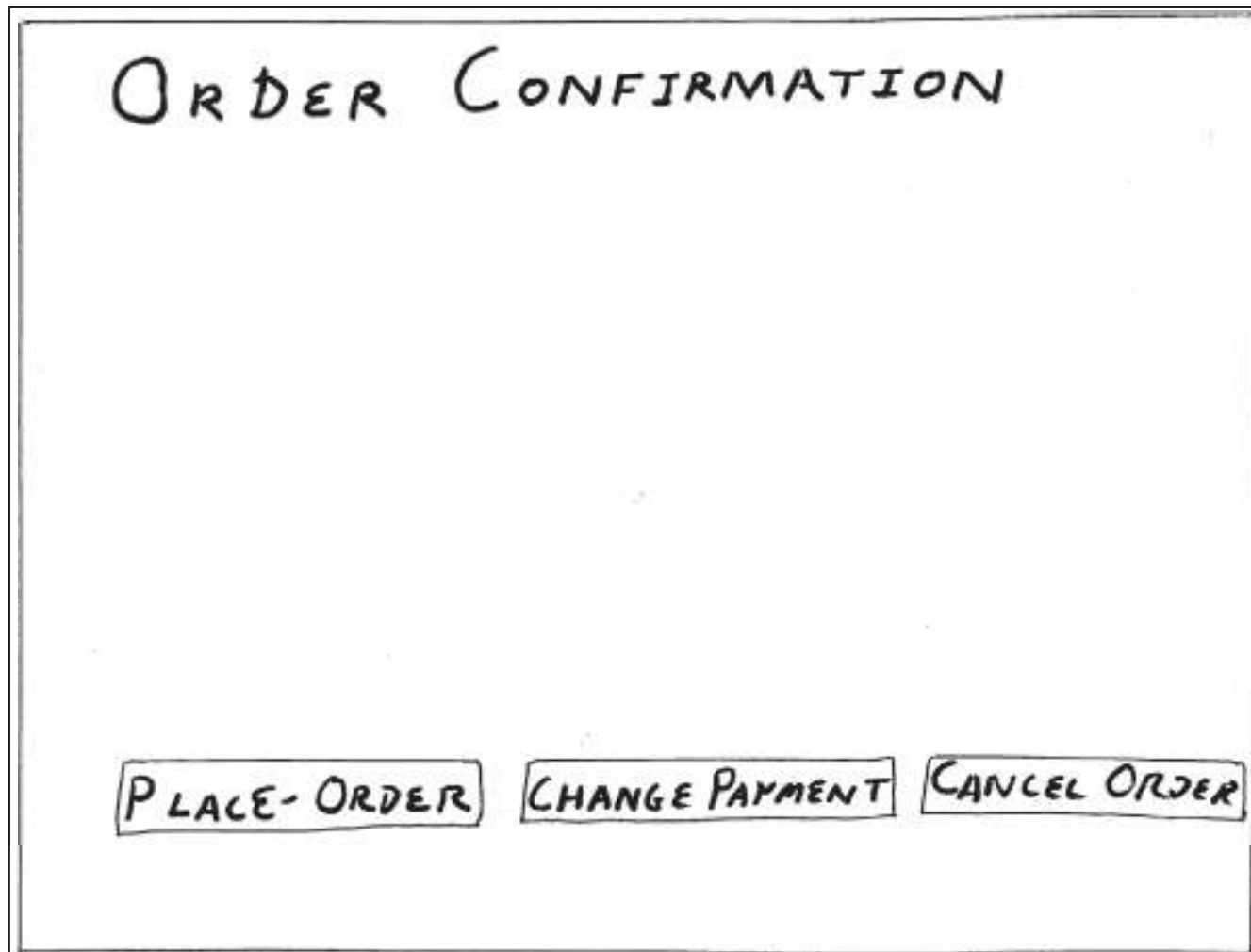
1	2	3
4	5	6
7	8	9
.	0	Next form of payment

Make Payment

MODIFY ORDER

Sketches (3)

Screen 3: Order confirmation screen



Sketches (4)

Screen 4: Order is confirmed

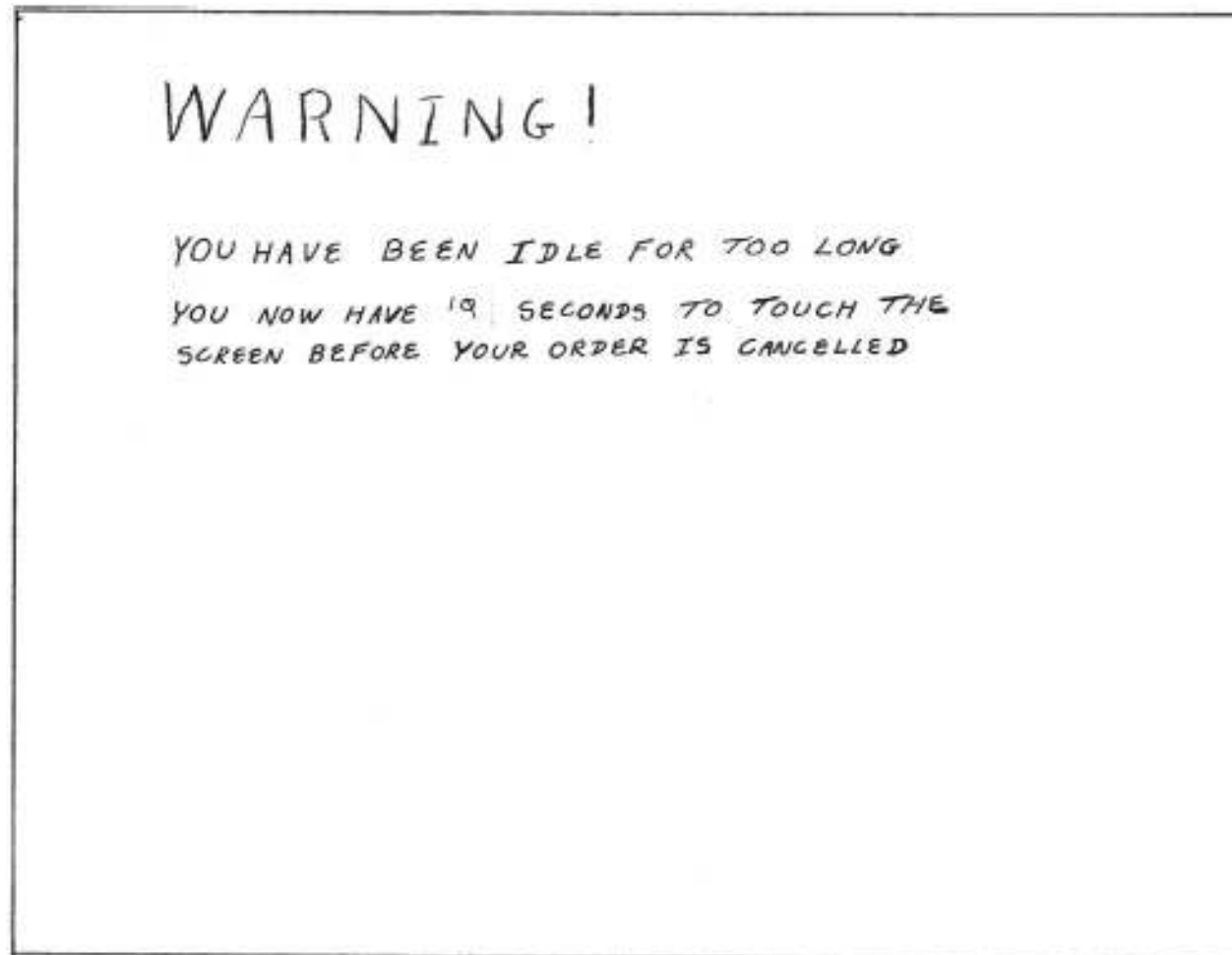
YOUR ORDER HAS
BEEN PLACED.

PLEASE TAKE YOUR RECEIPT TO
THE COUNTER TO GET YOUR
ORDER.

Thank you and come again!

Sketches (5)

Screen 5: Inactivity screen



Low Fidelity Prototypes

- Storyboarding

- It's a series of key frames

- Originally from film; used to get the idea of a scene
 - Snapshots of the interface at particular points in the interaction



- For interfaces it allows users to quickly evaluate the direction of the design

Storyboards

- Often used with scenarios, bringing more detail, and a chance to role play
- It is a series of sketches showing how a user might progress through a task using the device
- Used early in design

Storyboarding

THE HAPPY DUDE MENU

(PUSH BUTTON TO PLACE ORDER)

PLACE ORDER

CANCEL ORDER

BURGERS		FRIES	BEVERAGES		
			LITTLE GIGGLE SIZE	MEDIUM CHUCKLE SIZE	GREAT GUFFAW SIZE
BASIC MERRY BURGER No. ORDERED \$1.50 EACH	SMIRKING SMALL FRIES No. ORDERED \$0.75 EACH	POP	PUSH TO ORDER No. ORDERED \$0.80 EACH	PUSH TO ORDER No. ORDERED \$1.40 EACH	PUSH TO ORDER No. ORDERED \$1.75 EACH
THE JOLLY BURGER No. ORDERED \$2.25 EACH	MEDIUM GRINER FRIES No. ORDERED \$1.00 EACH	JUICE	PUSH TO ORDER No. ORDERED \$1.20 EACH	PUSH TO ORDER No. ORDERED \$1.60 EACH	PUSH TO ORDER No. ORDERED \$1.75 EACH
CLASSIC HAPPY BURGER No. ORDERED \$2.75 EACH	LARGE SMILEY FRIES No. ORDERED \$1.50 EACH	COFFEE	PUSH TO ORDER No. ORDERED \$0.75 EACH	PUSH TO ORDER No. ORDERED \$1.00 EACH	PUSH TO ORDER No. ORDERED \$1.25 EACH
THE ECSTATIC BURGER No. ORDERED \$3.50 EACH	SUPER LARGE SMILEY FRIES No. ORDERED \$1.75 EACH	TEA	PUSH TO ORDER No. ORDERED \$0.75 EACH	PUSH TO ORDER No. ORDERED \$1.00 EACH	PUSH TO ORDER No. ORDERED \$1.25 EACH



Initial order screen

Storyboarding (2)

THE HAPPY DUDE MENU

(PUSH BUTTON TO PLACE ORDER)

PLACE ORDER

CANCEL ORDER

BURGERS		FRIES	BEVERAGES		
			LITTLE GIGGLE SIZE	MEDIUM CHUCKLE SIZE	GREAT GUFFAW SIZE
BASIC MERRY BURGER No. ORDERED \$1.50 EACH	SMIRKING SMALL FRIES No. ORDERED \$0.75 EACH	POP	PUSH TO ORDER No. ORDERED \$0.50 EACH	PUSH TO ORDER No. ORDERED \$1.00 EACH	PUSH TO ORDER No. ORDERED \$1.75 EACH
THE JOLLY BURGER No. ORDERED \$2.25 EACH	MEDIUM GRINNER FRIES No. ORDERED \$1.00 EACH	JUICE	PUSH TO ORDER No. ORDERED \$1.00 EACH	PUSH TO ORDER No. ORDERED \$1.50 EACH	PUSH TO ORDER No. ORDERED \$1.75 EACH
CLASSIC HAPPY BURGER No. ORDERED \$2.75 EACH	LARGE SMILEY FRIES No. ORDERED \$1.50 EACH	COFFEE	PUSH TO ORDER No. ORDERED \$0.75 EACH	PUSH TO ORDER No. ORDERED \$2.00 EACH	PUSH TO ORDER No. ORDERED \$2.25 EACH
THE ECSTATIC BURGER No. ORDERED \$3.50 EACH	SUPER LARGE SMILEY FRIES No. ORDERED \$1.75 EACH	TEA	PUSH TO ORDER No. ORDERED \$0.75 EACH	PUSH TO ORDER No. ORDERED \$2.00 EACH	PUSH TO ORDER No. ORDERED \$1.25 EACH

User orders an "Ecstatic Burger"

Storyboarding (3)

THE HAPPY DUDE MENU
(PUSH BUTTON TO PLACE ORDER)

PLACE ORDER CANCEL ORDER

BURGERS		FRIES	BEVERAGES		
			LITTLE GIGGLE SIZE	MEDIUM GIGGLE SIZE	GREAT GIGGLE SIZE
BASIC MERRY BURGER No. ORDERED \$1.50 EACH	SMIRKING SMALL FRIES No. ORDERED \$0.75 EACH	POP	PUSH TO ORDER No. ORDERED \$0.50 EACH	PUSH TO ORDER No. ORDERED \$1.00 EACH	PUSH TO ORDER No. ORDERED \$1.75 EACH
THE JOLLY BURGER No. ORDERED \$2.25 EACH	MEDIUM GRATER FRIES No. ORDERED \$1.00 EACH	JUICE	PUSH TO ORDER No. ORDERED \$1.00 EACH	PUSH TO ORDER No. ORDERED \$1.50 EACH	PUSH TO ORDER No. ORDERED \$1.75 EACH
CLASSIC HAPPY BURGER No. ORDERED \$2.75 EACH	LARGE SMILEY FRIES No. ORDERED \$1.50 EACH	COFFEE	PUSH TO ORDER No. ORDERED \$0.75 EACH	PUSH TO ORDER No. ORDERED \$1.00 EACH	PUSH TO ORDER No. ORDERED \$1.25 EACH
THE ECSTATIC BURGER No. ORDERED \$3.50 EACH	SUPER LARGE SMILEY FRIES No. ORDERED \$1.75 EACH	TEA	PUSH TO ORDER No. ORDERED \$0.75 EACH	PUSH TO ORDER No. ORDERED \$1.00 EACH	PUSH TO ORDER No. ORDERED \$1.25 EACH

Order is placed

Storyboarding (4)

The storyboard shows a payment screen layout. A large arrow on the left points to the screen, and a large arrow on the right points away from it. The screen itself is a rectangle containing the following elements:

- PAYMENT OPTIONS** (Title)
- Amount Due \$** (Text)
- Method of Payment** (Text)
- Cash \$ 3.50** (Text)
- Visa \$** (Text)
- MC \$** (Text)
- Debit \$** (Text)
- Amex \$** (Text)
- Numeric Keypad:**

1	2	3
4	5	6
7	8	9
.	0	Next form of payment
- Make Payment** (Button)
- MODIFY ORDER** (Button)

Payment screen comes up

Storyboarding (5)

PAYMENT OPTIONS

Amount Due \$

Method of Payment

- Cash \$ 3.50
- Visa \$
- MC \$
- Debit \$
- Amex \$

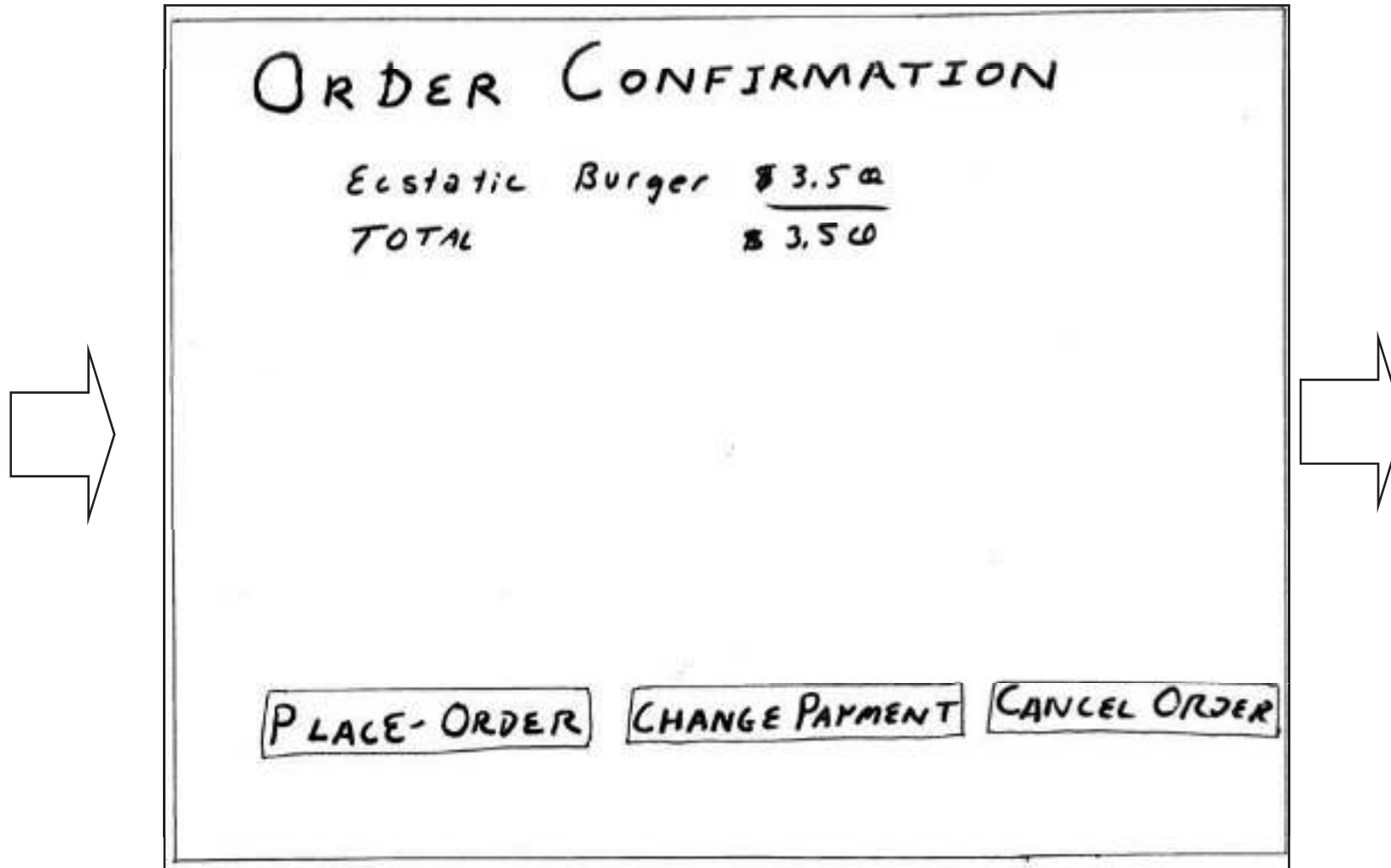
1	2	3
4	5	6
7	8	9
.	0	Next Form of Payment

Make Payment

Modify Order

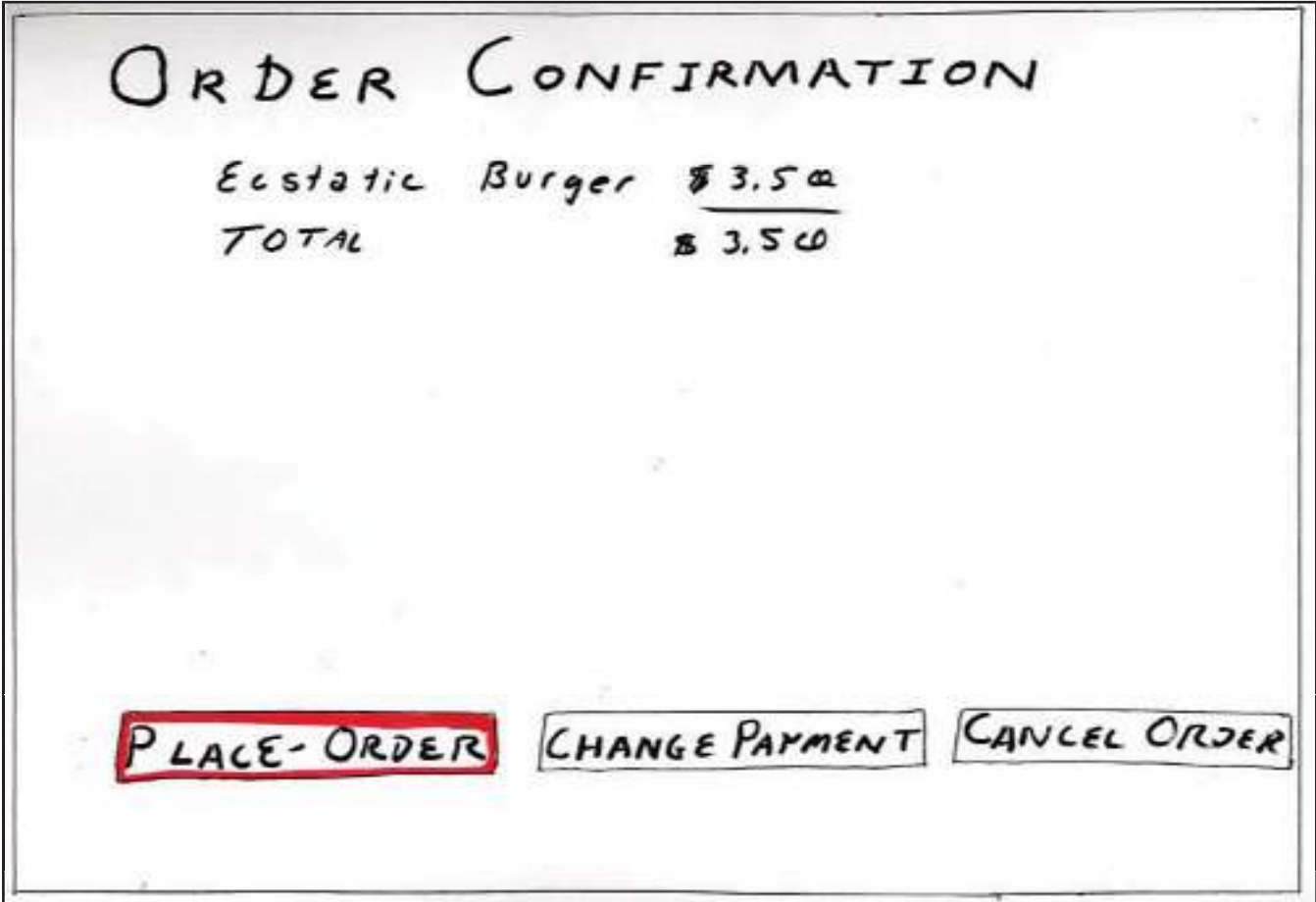
User pays with cash

Storyboarding (6)



Order confirmation screen comes up

Storyboarding (7)



A storyboard frame showing a mobile app screen for 'ORDER CONFIRMATION'. The screen displays the order details: 'Ecstatic Burger' for '\$3.50' and a 'TOTAL' of '\$3.50'. At the bottom, there are three buttons: 'PLACE-ORDER' (highlighted with a red border), 'CHANGE PAYMENT', and 'CANCEL ORDER'. The frame is flanked by two large white arrows pointing right, indicating the flow of the storyboard.

ORDER CONFIRMATION

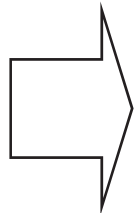
Ecstatic Burger \$3.50

TOTAL \$3.50

PLACE-ORDER CHANGE PAYMENT CANCEL ORDER

Order is placed

Storyboarding (8)



YOUR ORDER HAS
BEEN PLACED.

PLEASE TAKE YOUR RECEIPT TO
THE COUNTER TO GET YOUR
ORDER.

Thank you and come again!

Order confirmation is shown

Storyboarding: Alternate Path

THE HAPPY DUDE MENU

(PUSH BUTTON TO PLACE ORDER)

PLACE ORDER

CANCEL ORDER

BURGERS		FRIES	BEVERAGES		
			LITTLE GIGGLE SIZE	MEDIUM CHUCKLE SIZE	GREAT GUFFAW SIZE
BASIC MERRY BURGER No. ORDERED \$1.50 EACH	SMIRKING SMALL FRIES No. ORDERED \$0.75 EACH	POP	PUSH TO ORDER No. ORDERED \$0.50 EACH	PUSH TO ORDER No. ORDERED \$1.00 EACH	PUSH TO ORDER No. ORDERED \$1.75 EACH
THE JOLLY BURGER No. ORDERED \$2.25 EACH	MEDIUM GRINNER FRIES No. ORDERED \$1.00 EACH	JUICE	PUSH TO ORDER No. ORDERED \$1.00 EACH	PUSH TO ORDER No. ORDERED \$1.50 EACH	PUSH TO ORDER No. ORDERED \$1.75 EACH
CLASSIC HAPPY BURGER No. ORDERED \$2.75 EACH	LARGE SMILEY FRIES No. ORDERED \$1.50 EACH	COFFEE	PUSH TO ORDER No. ORDERED \$0.75 EACH	PUSH TO ORDER No. ORDERED \$1.00 EACH	PUSH TO ORDER No. ORDERED \$1.25 EACH
THE ECSTATIC BURGER No. ORDERED \$3.50 EACH	SUPER LARGE SMILEY FRIES No. ORDERED \$1.75 EACH	TEA	PUSH TO ORDER No. ORDERED \$0.75 EACH	PUSH TO ORDER No. ORDERED \$1.00 EACH	PUSH TO ORDER No. ORDERED \$1.25 EACH

Initial order screen

Storyboarding: Alternate Path (2)

THE HAPPY DUDE MENU

(PUSH BUTTON TO PLACE ORDER)

PLACE ORDER

CANCEL ORDER

BURGERS		FRIES	BEVERAGES		
			LITTLE GIGGLE SIZED	MEDIUM GIGGLE SIZED	GRAY GUFFAW SIZED
BASIC MERRY BURGER No. ORDERED \$1.50 EACH	SMIRKING SMALL FRIES No. ORDERED \$0.75 EACH	POP	PUSH TO ORDER No. ORDERED \$0.25 EACH	PUSH TO ORDER No. ORDERED \$1.00 EACH	PUSH TO ORDER No. ORDERED \$1.75 EACH
THE JOLLY BURGER No. ORDERED \$2.25 EACH	MEDIUM GEMMER FRIES No. ORDERED \$1.00 EACH	JUICE	PUSH TO ORDER No. ORDERED \$1.00 EACH	PUSH TO ORDER No. ORDERED \$1.50 EACH	PUSH TO ORDER No. ORDERED \$1.75 EACH
CLASSIC HAPPY BURGER No. ORDERED \$2.75 EACH	LARGE SMILEY FRIES No. ORDERED \$1.50 EACH	COFFEE	PUSH TO ORDER No. ORDERED \$0.75 EACH	PUSH TO ORDER No. ORDERED \$1.00 EACH	PUSH TO ORDER No. ORDERED \$1.25 EACH
THE ECSTATIC BURGER No. ORDERED \$3.50 EACH	SUPER LARGE SMILEY FRIES No. ORDERED \$1.75 EACH	TEA	PUSH TO ORDER No. ORDERED \$0.75 EACH	PUSH TO ORDER No. ORDERED \$1.00 EACH	PUSH TO ORDER No. ORDERED \$1.25 EACH

User orders a “Basic Merry Burger”

Storyboarding: Alternate Path (3)

THE HAPPY DUDE MENU

(PUSH BUTTON TO PLACE ORDER)

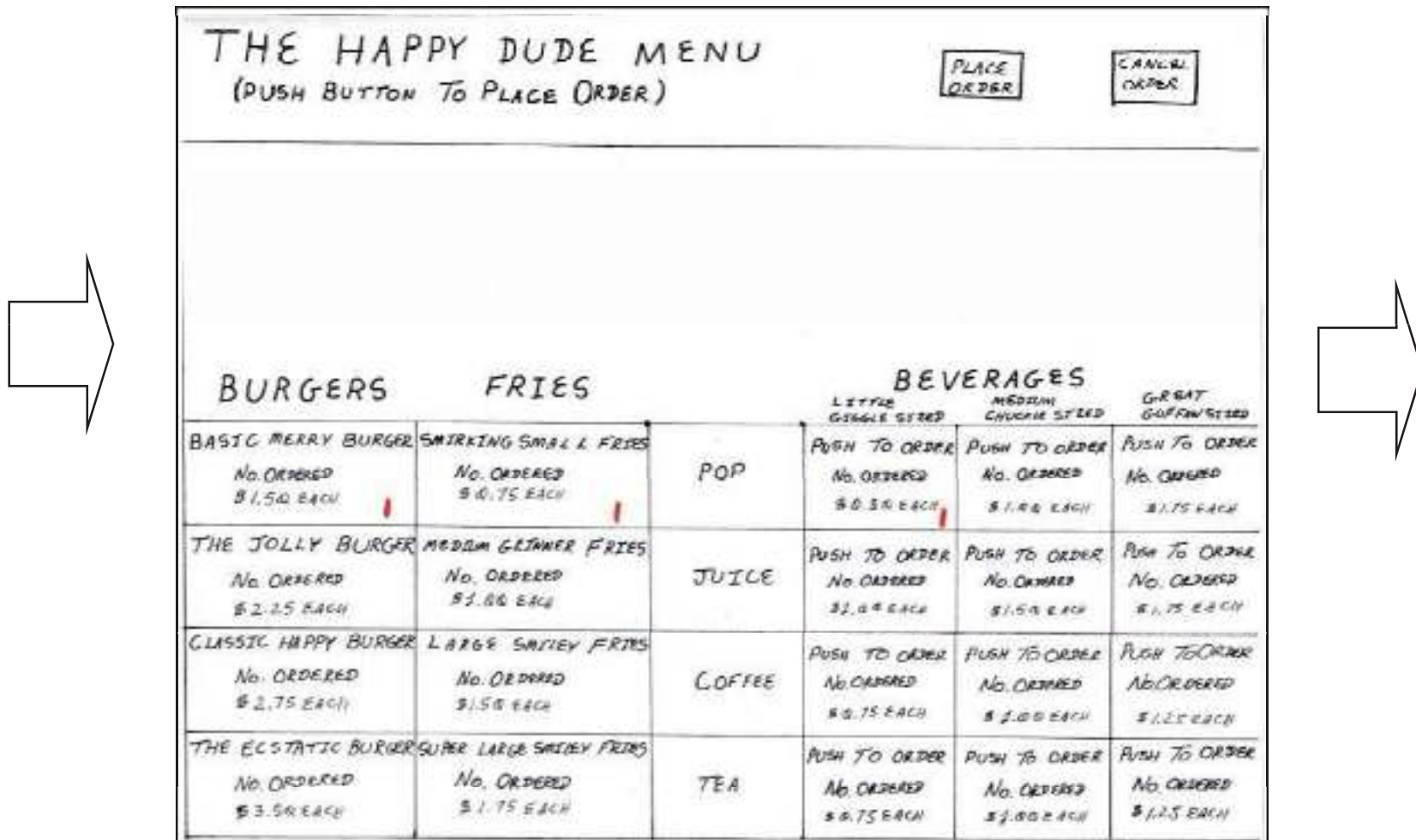
PLACE ORDER

CANCEL ORDER

BURGERS		FRIES	BEVERAGES		
			<small> LITTLE GIGGLE SIZED </small>	<small> MEDIUM GULUM SIZED </small>	<small> GREAT GUFFAW SIZED </small>
BASIC MERRY BURGER <small>No. ORDERED</small> <small>\$1.50 EACH</small>	SMIRKING SMALL FRIES <small>No. ORDERED</small> <small>\$0.75 EACH</small>	POP	<small>PUSH TO ORDER</small> <small>No. ORDERED</small> <small>\$0.50 EACH</small>	<small>PUSH TO ORDER</small> <small>No. ORDERED</small> <small>\$1.00 EACH</small>	<small>PUSH TO ORDER</small> <small>No. ORDERED</small> <small>\$1.75 EACH</small>
THE JOLLY BURGER <small>No. ORDERED</small> <small>\$2.25 EACH</small>	MEDIUM GETAWAY FRIES <small>No. ORDERED</small> <small>\$1.00 EACH</small>	JUICE	<small>PUSH TO ORDER</small> <small>No. ORDERED</small> <small>\$1.00 EACH</small>	<small>PUSH TO ORDER</small> <small>No. ORDERED</small> <small>\$1.50 EACH</small>	<small>PUSH TO ORDER</small> <small>No. ORDERED</small> <small>\$1.75 EACH</small>
CLASSIC HAPPY BURGER <small>No. ORDERED</small> <small>\$2.75 EACH</small>	LARGE SMIRKY FRIES <small>No. ORDERED</small> <small>\$1.50 EACH</small>	COFFEE	<small>PUSH TO ORDER</small> <small>No. ORDERED</small> <small>\$0.75 EACH</small>	<small>PUSH TO ORDER</small> <small>No. ORDERED</small> <small>\$1.00 EACH</small>	<small>PUSH TO ORDER</small> <small>No. ORDERED</small> <small>\$1.25 EACH</small>
THE ECSTATIC BURGER <small>No. ORDERED</small> <small>\$3.50 EACH</small>	SUPER LARGE SMIRKY FRIES <small>No. ORDERED</small> <small>\$1.75 EACH</small>	TEA	<small>PUSH TO ORDER</small> <small>No. ORDERED</small> <small>\$0.75 EACH</small>	<small>PUSH TO ORDER</small> <small>No. ORDERED</small> <small>\$1.00 EACH</small>	<small>PUSH TO ORDER</small> <small>No. ORDERED</small> <small>\$1.25 EACH</small>

User orders "Smirking small fries"

Storyboarding: Alternate Path (4)



The storyboard shows a menu interface for 'THE HAPPY DUDE MENU'. The menu is divided into sections: BURGERS, FRIES, BEVERAGES, and a central column for POP, JUICE, COFFEE, and TEA. The BEVERAGES section is further divided into LITTLE GIGGLE SIZED, MEDIUM CHUCKLE SIZED, and GREAT GUFFAW SIZED. The user path is highlighted with red marks: a red dot on the 'BASIC MERRY BURGER' row, a red dot on the 'SMIRKING SMALL FRIES' row, and a red dot on the 'LITTLE GIGGLE SIZED' column.

THE HAPPY DUDE MENU (PUSH BUTTON TO PLACE ORDER)		PLACE ORDER		CANCEL ORDER		
BURGERS		FRIES		BEVERAGES		
				LITTLE GIGGLE SIZED	MEDIUM CHUCKLE SIZED	GREAT GUFFAW SIZED
BASIC MERRY BURGER No. ORDERED \$1.50 EACH	SMIRKING SMALL FRIES No. ORDERED \$0.75 EACH	POP	PUSH TO ORDER No. ORDERED \$0.30 EACH	PUSH TO ORDER No. ORDERED \$1.00 EACH	PUSH TO ORDER No. ORDERED \$1.75 EACH	
THE JOLLY BURGER No. ORDERED \$2.25 EACH	MEDIUM GRINNER FRIES No. ORDERED \$1.00 EACH	JUICE	PUSH TO ORDER No. ORDERED \$2.00 EACH	PUSH TO ORDER No. ORDERED \$1.50 EACH	PUSH TO ORDER No. ORDERED \$1.75 EACH	
CLASSIC HAPPY BURGER No. ORDERED \$2.75 EACH	LARGE SMILEY FRIES No. ORDERED \$1.50 EACH	COFFEE	PUSH TO ORDER No. ORDERED \$0.75 EACH	PUSH TO ORDER No. ORDERED \$1.00 EACH	PUSH TO ORDER No. ORDERED \$1.25 EACH	
THE ECSTATIC BURGER No. ORDERED \$3.50 EACH	SUPER LARGE SMILEY FRIES No. ORDERED \$1.75 EACH	TEA	PUSH TO ORDER No. ORDERED \$0.75 EACH	PUSH TO ORDER No. ORDERED \$1.00 EACH	PUSH TO ORDER No. ORDERED \$1.25 EACH	

User orders a "Giggle sized pop"

Storyboarding: Alternate Path (5)

THE HAPPY DUDE MENU

(PUSH BUTTON TO PLACE ORDER)

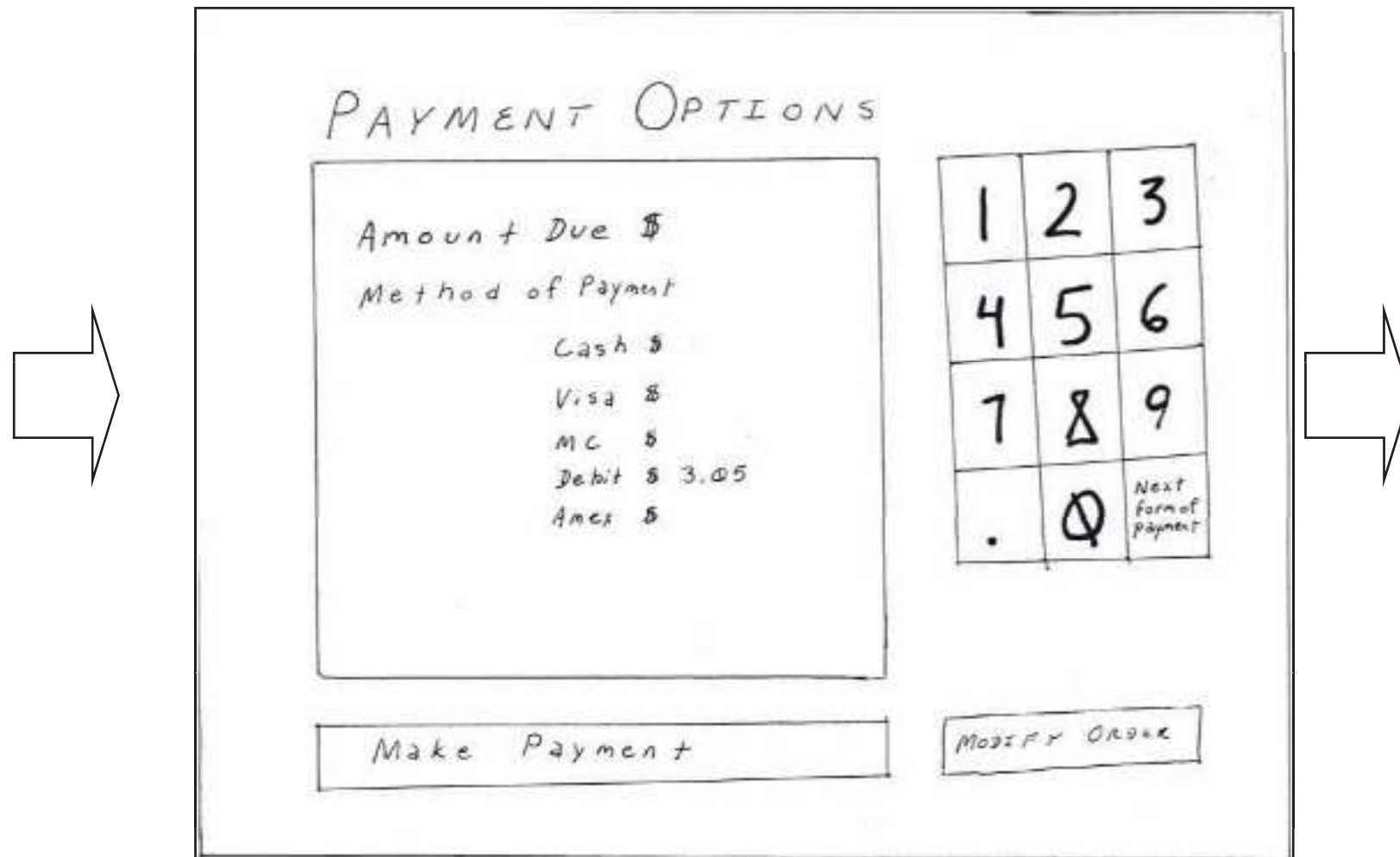
PLACE ORDER

CANCEL ORDER

BURGERS		FRIES	BEVERAGES		
			LITTLE GIRLIE SIZED	MEDIUM CHUGGARE SIZED	GREAT GUFFAW SIZED
BASIC MERRY BURGER No. ORDERED \$1.50 EACH	SMIRKING SMALL FRIES No. ORDERED \$0.75 EACH	POP	PUSH TO ORDER No. ORDERED \$0.50 EACH	PUSH TO ORDER No. ORDERED \$1.00 EACH	PUSH TO ORDER No. ORDERED \$1.75 EACH
THE JOLLY BURGER No. ORDERED \$2.25 EACH	MEDIUM GETAWAY FRIES No. ORDERED \$1.00 EACH	JUICE	PUSH TO ORDER No. ORDERED \$3.00 EACH	PUSH TO ORDER No. ORDERED \$1.50 EACH	PUSH TO ORDER No. ORDERED \$1.75 EACH
CLASSIC HAPPY BURGER No. ORDERED \$2.75 EACH	LARGE SMILEY FRIES No. ORDERED \$1.50 EACH	COFFEE	PUSH TO ORDER No. ORDERED \$0.75 EACH	PUSH TO ORDER No. ORDERED \$2.00 EACH	PUSH TO ORDER No. ORDERED \$1.25 EACH
THE ECSTATIC BURGER No. ORDERED \$3.50 EACH	SUPER LARGE SMILEY FRIES No. ORDERED \$1.75 EACH	TEA	PUSH TO ORDER No. ORDERED \$0.75 EACH	PUSH TO ORDER No. ORDERED \$2.00 EACH	PUSH TO ORDER No. ORDERED \$1.25 EACH

Order is placed

Storyboarding: Alternate Path (6)



A hand-drawn storyboard for a payment screen. The screen is titled "PAYMENT OPTIONS". It features a large rectangular area for input, a numeric keypad, and two buttons at the bottom. The input area contains labels for "Amount Due \$", "Method of Payment", and a list of payment methods: "Cash \$", "Visa \$", "MC \$", "Debit \$ 3.05", and "Amex \$". The numeric keypad is a 4x3 grid with digits 1-9, a decimal point, and a "0" button. The "0" button is labeled "Next form of payment". The "Make Payment" button is on the left and the "MODIFY ORDER" button is on the right. Two large arrows point from the left and right sides of the screen towards the center.

PAYMENT OPTIONS

Amount Due \$

Method of Payment

Cash \$

Visa \$

MC \$

Debit \$ 3.05

Amex \$

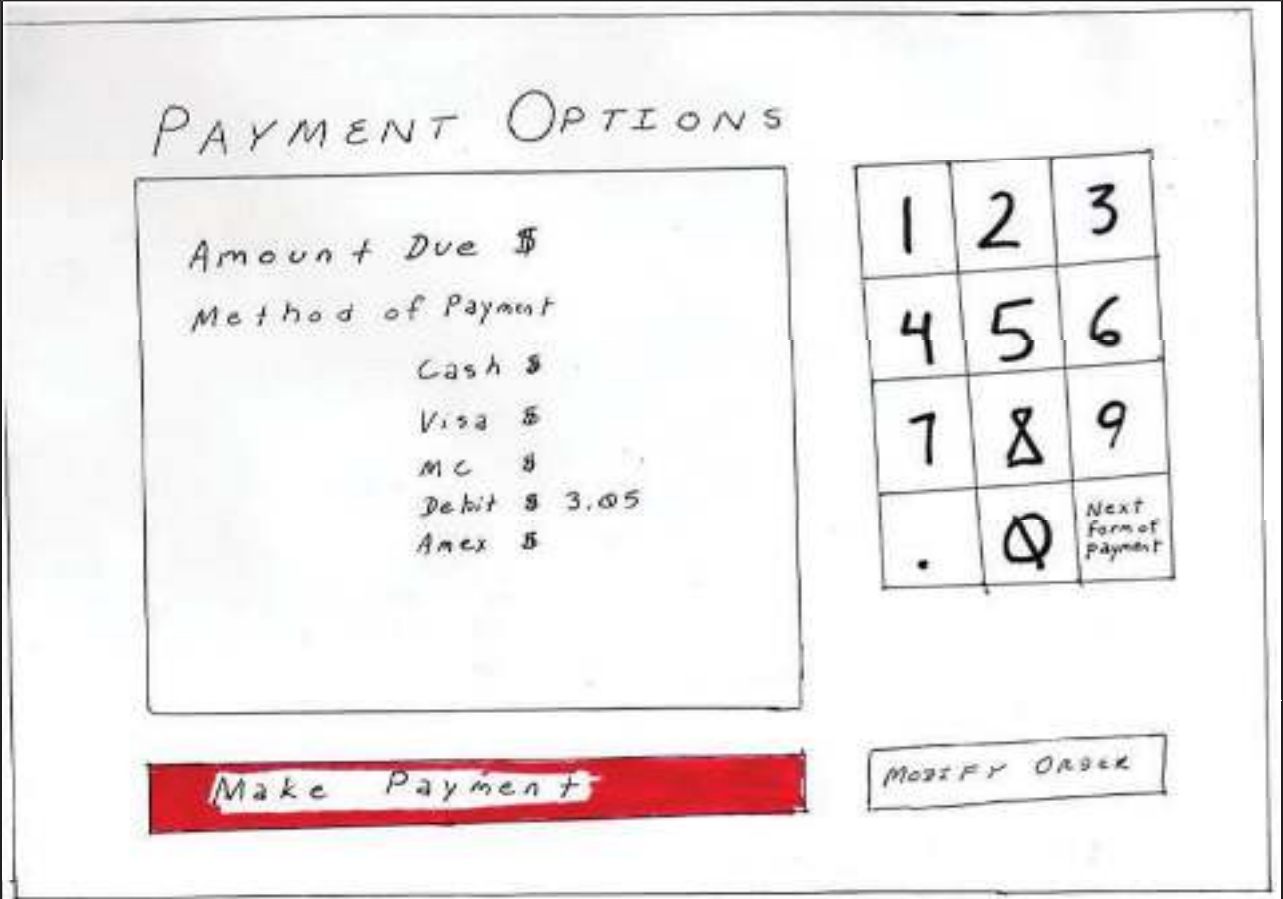
1	2	3
4	5	6
7	8	9
.	0	Next form of payment

Make Payment

MODIFY ORDER

Payment screen comes up

Storyboarding: Alternate Path (7)



A hand-drawn storyboard for a payment screen. The screen is titled "PAYMENT OPTIONS". It features a large rectangular area for displaying payment details, a numeric keypad, and two buttons at the bottom. The payment details area shows "Amount Due \$" and "Method of Payment" with a list of options: "Cash \$", "Visa \$", "MC \$", "Debit \$ 3.05", and "Amex \$". The numeric keypad has digits 1-9, a decimal point, and a "Next form of payment" button. The "Make Payment" button is highlighted in red, and the "MODIFY ORDER" button is outlined.

PAYMENT OPTIONS

Amount Due \$

Method of Payment

- Cash \$
- Visa \$
- MC \$
- Debit \$ 3.05
- Amex \$

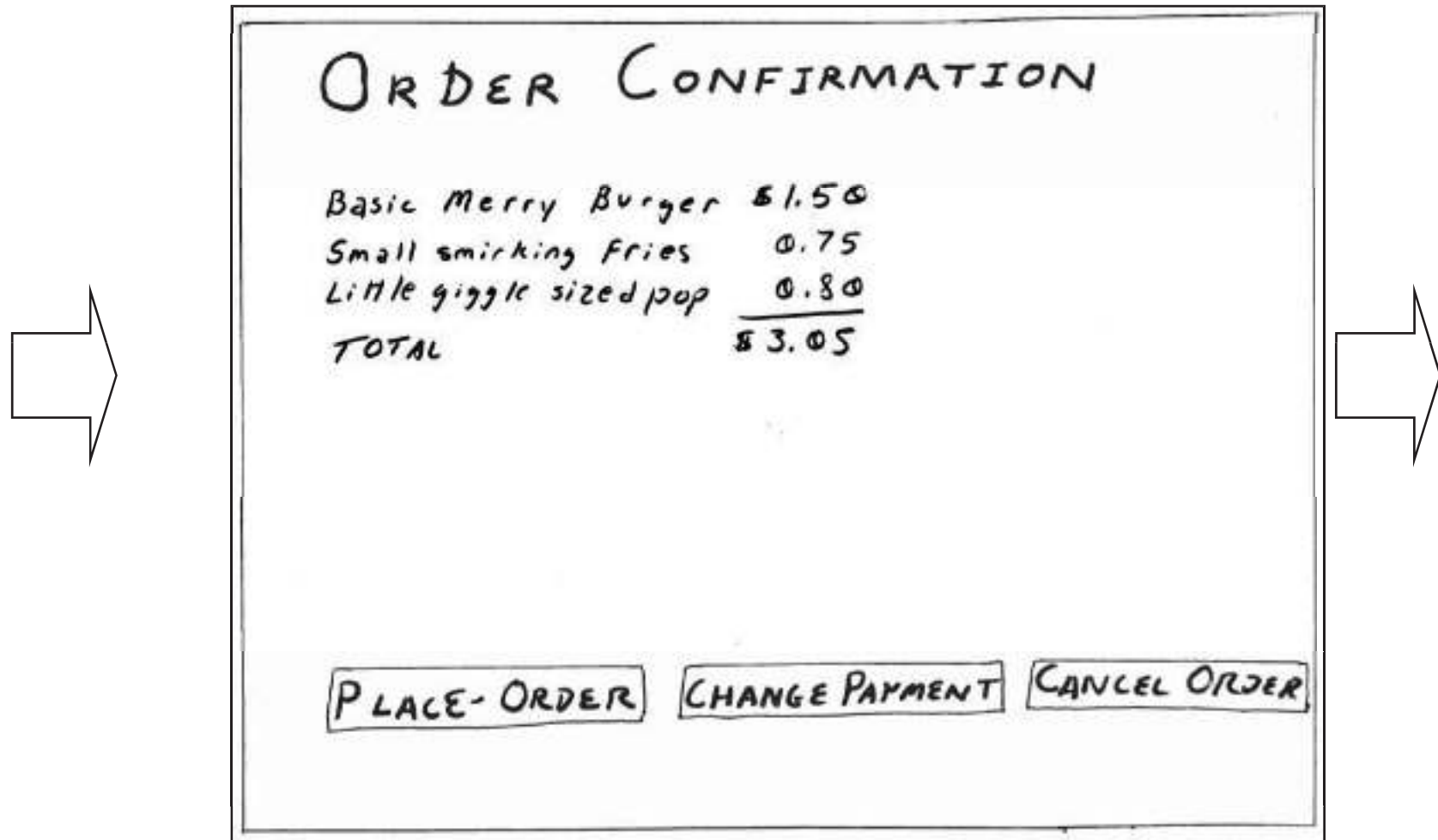
1	2	3
4	5	6
7	8	9
.	0	Next form of payment

Make Payment

MODIFY ORDER

User pays by debit

Storyboarding: Alternate Path (8)



Order confirmation screen comes up

Storyboarding: Alternate Path (9)

ORDER CONFIRMATION

Basic Merry Burger	\$1.50
Small smirking Fries	0.75
Little giggle sized pop	0.80
TOTAL	<u>\$3.05</u>

PLACE-ORDER CHANGE PAYMENT CANCEL ORDER

The image shows a storyboard panel for an 'Alternate Path (9)'. It features a hand-drawn 'ORDER CONFIRMATION' screen. The screen displays a list of items: 'Basic Merry Burger' for \$1.50, 'Small smirking Fries' for 0.75, and 'Little giggle sized pop' for 0.80. The total is \$3.05. At the bottom, there are three buttons: 'PLACE-ORDER' (highlighted with a red border), 'CHANGE PAYMENT', and 'CANCEL ORDER'. Two large white arrows point towards the screen from the left and right sides.

Order is placed

Storyboarding: Alternate Path (10)



Order confirmation is shown

Medium Fidelity Prototypes

- Many different types
 - Range from simple computer draw images to partially working systems
- They may take longer to generate and change than simple low fidelity representations
- Benefits
 - It seems more like the completed system so it provides a clearer idea of how it works
 - May be used to elicit feedback from the user when low-fidelity approaches cannot be used

Medium Fidelity Prototypes

- Tutorials and manuals
 - Write them in advance of the system
 - What are they?
 - Tutorial for step by step description of an interaction
 - an interface “walk-through” with directions
 - Manual for reference of key concepts
 - in-depth technical description of the different parts of the system
 - Does this work?
 - People often read manuals of competing products to check:
 - interface, functionality, match to task
 - Acts as a design tool

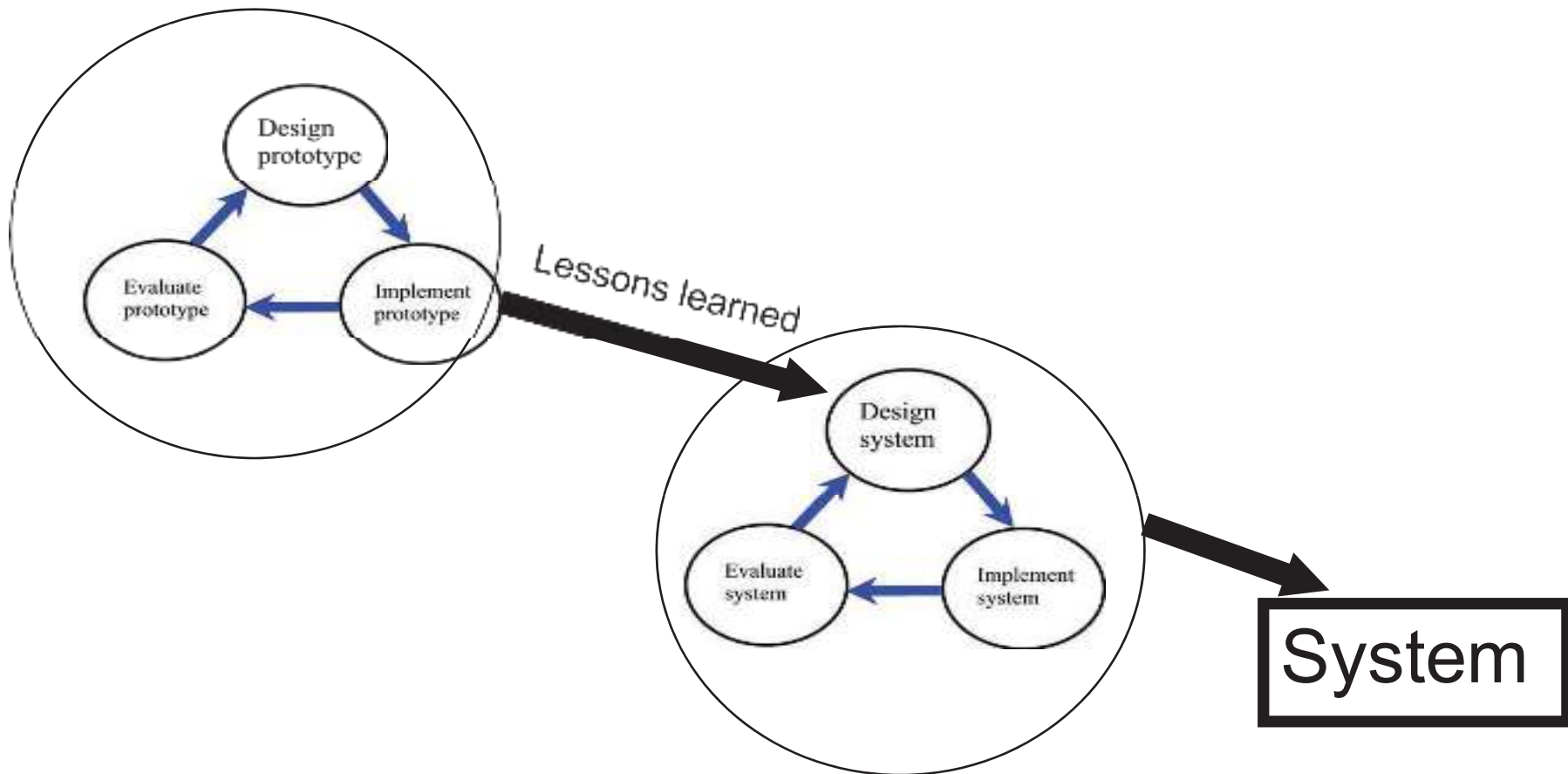


Medium Fidelity Prototypes

- Approaches to integrating prototypes and the final product:
 - Throw-away
 - Incremental
 - Evolutionary

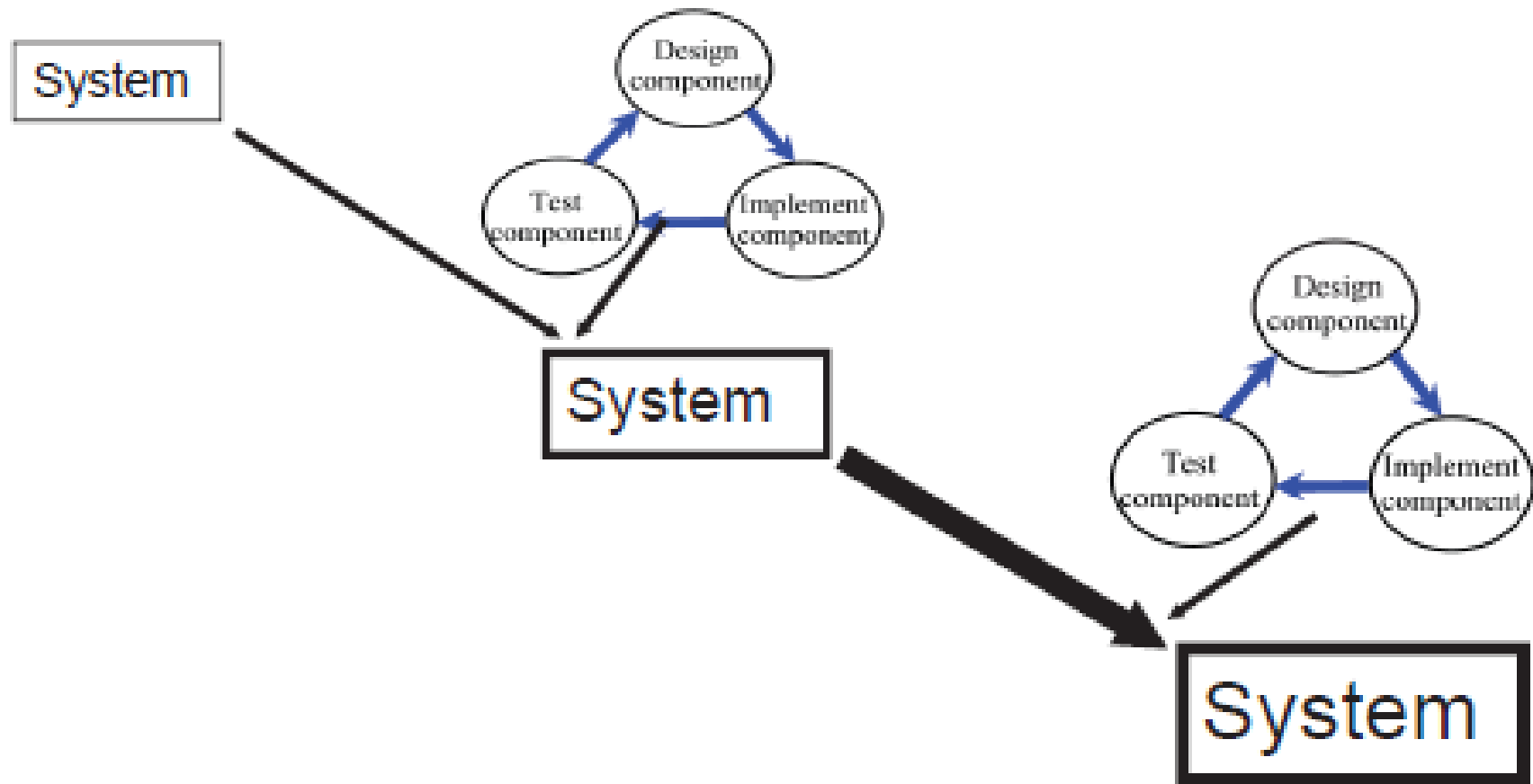
Throw-Away Approach To Prototyping

- The prototype only is used to get feedback
- The prototype is built, tested and then discarded



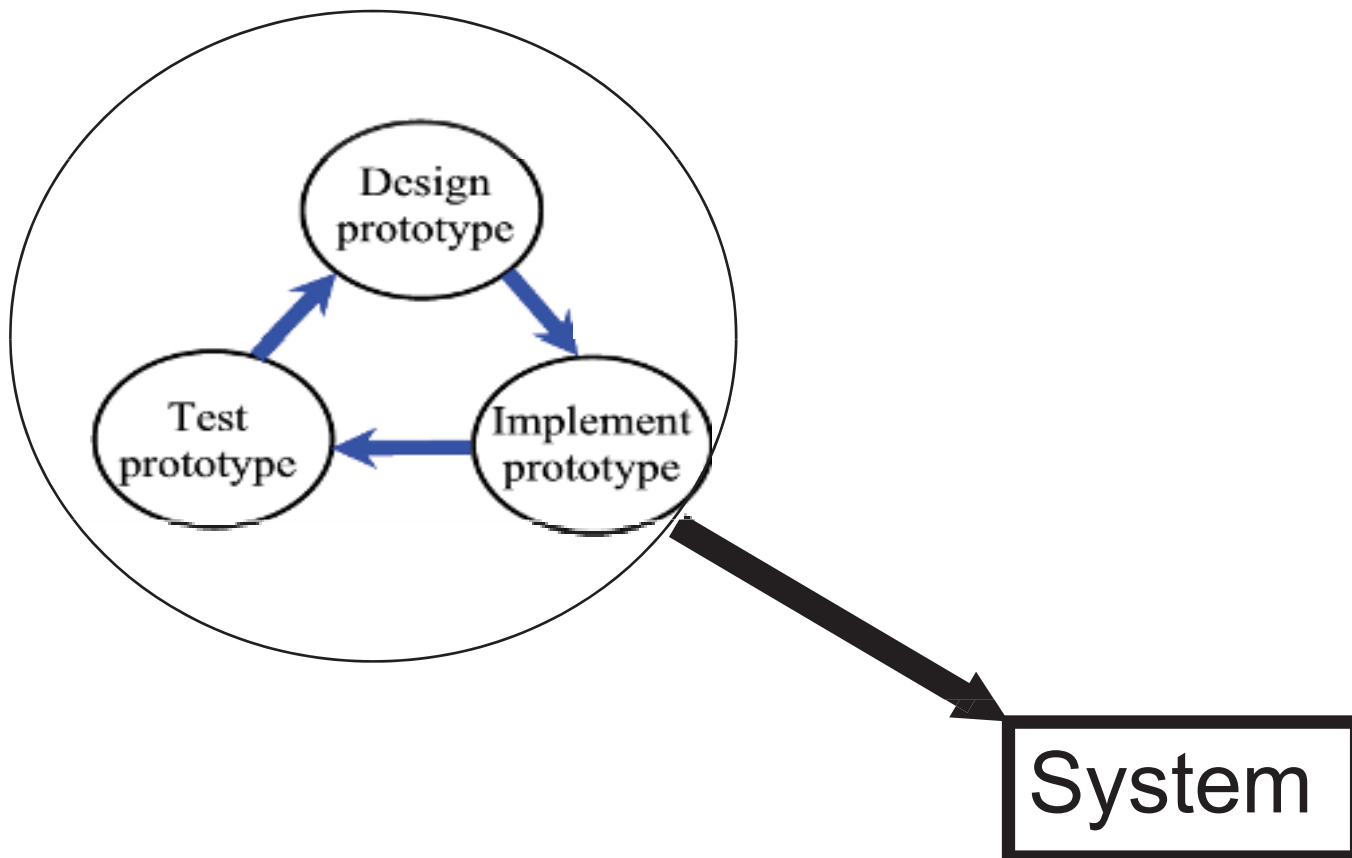
Incremental Approach To Prototyping

- Build the system as separate modules (component)
- Each module is designed, prototyped and completed separately before being added to the final system



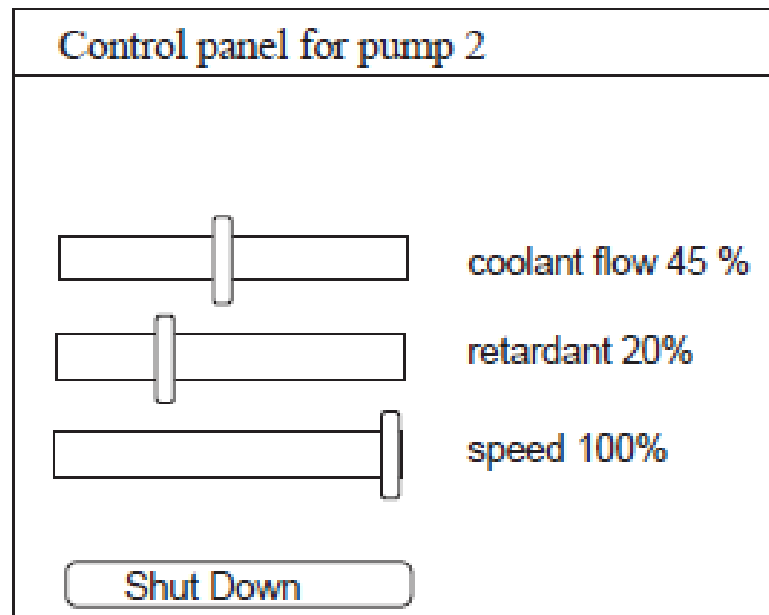
Evolutionary Approach To Prototyping

- Change the prototype itself in order to incorporate changes
- Eventually the reworked prototype becomes the final system

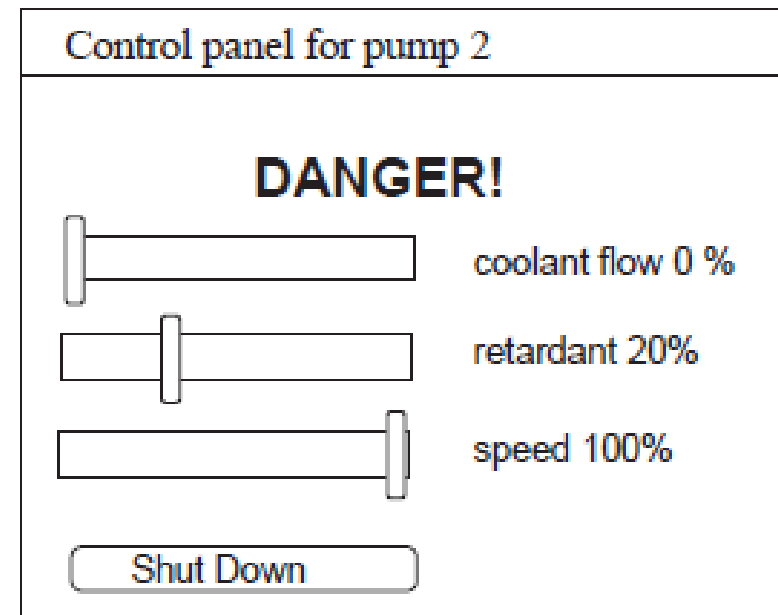


Medium Fidelity Prototypes

- Painting/drawing packages
 - Draw each storyboard scene on computer
 - Neater/easier (?) to change on the fly than paper



next
drawing
→
(for shut
down
condition)

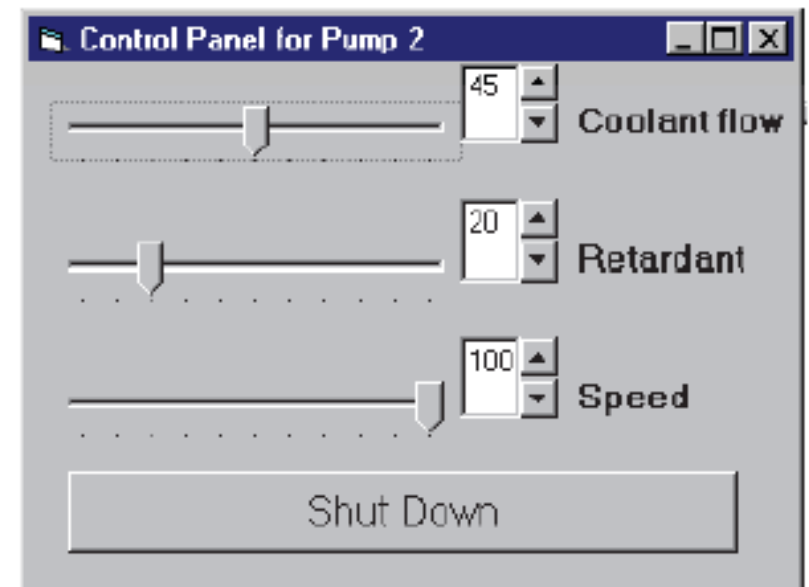


Medium Fidelity Prototypes

- Scripted simulations and slide shows
 - Encode the storyboard on the computer
 - Created with media tools
 - Scene transition activated by simple user inputs

Medium Fidelity Prototypes

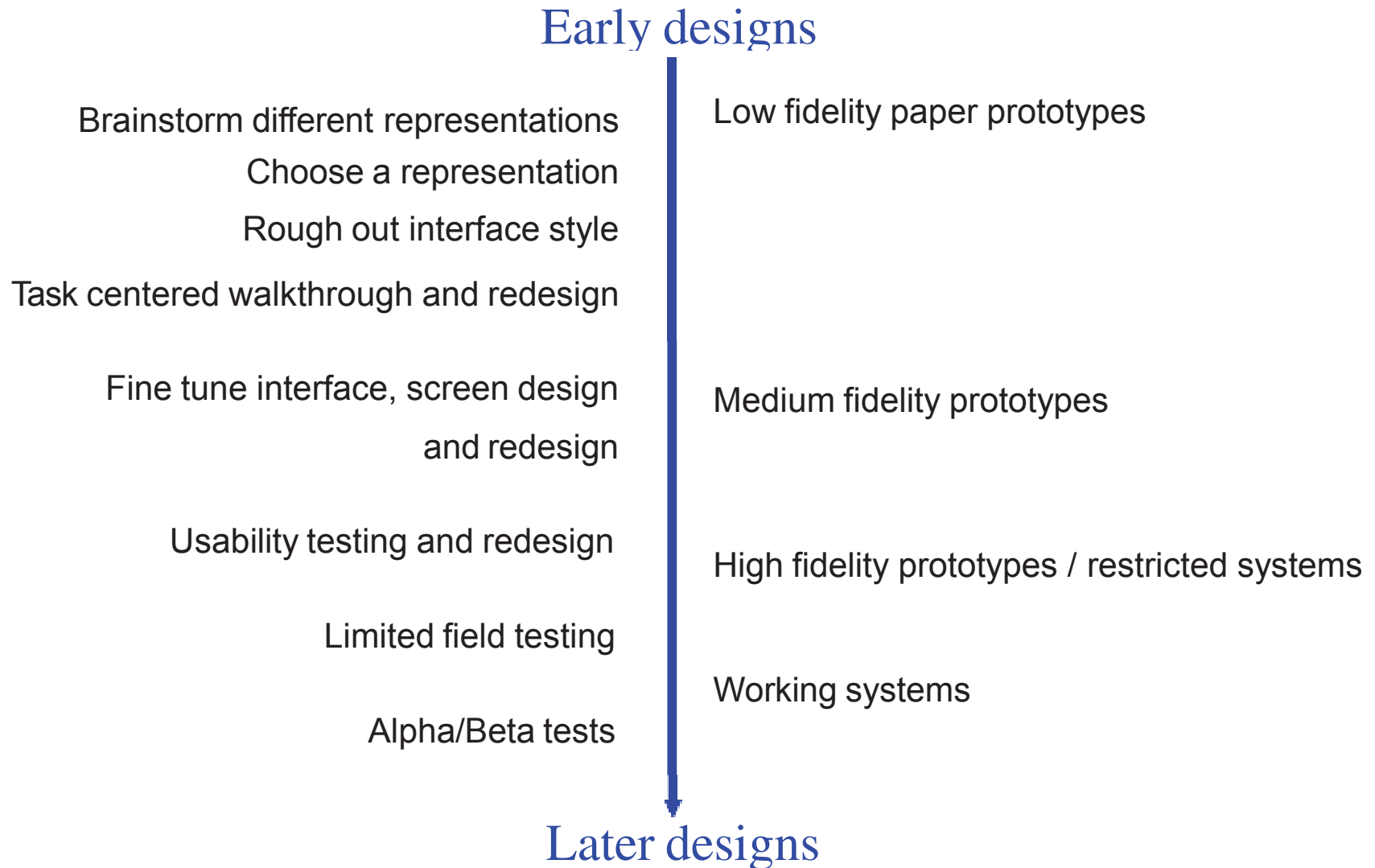
- Interface builders
 - Tools for letting a designer lay out the common widgets
 - Construct mode
 - Change attributes of objects
 - Test mode:
 - Objects behave as they would under real situations
 - Excellent for showing look and feel
 - A broader horizontal prototype
 - But constrained to widget library
 - Vertical functionality added selectively
 - Through programming



High fidelity prototyping

- Uses materials that you would expect to be in the final product.
- Prototype looks more like the final system than a low-fidelity version.
- For a high-fidelity software prototype common environments include Macromedia Director, Visual Basic, and Smalltalk.
- Danger that users think they have a full system

The Prototyping Process



Screen design

Two aspects:

- How to split across screens
moving around within and between screens
how much interaction per screen?
- Individual screen design
white space: balance between enough information/interaction and clarity
grouping items together: separation with boxes? lines? colors?

Screen design: splitting function across screens

- Task analysis as a starting point
- Each screen contains a single simple step?
- Frustration if too many simple screens

Screen design: individual screen design

- Draw user attention to salient point, e.g. colour, motion, boxing
- Animation is very powerful but can be distracting
- Good organization helps: grouping, physical proximity

Grouping

A: _____	B: _____
C: _____	D: _____

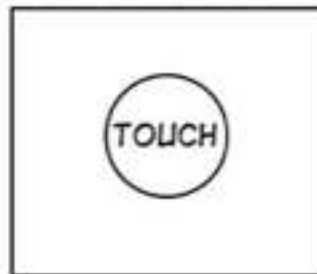
E: _____	F: _____
G: _____	H: _____

Right

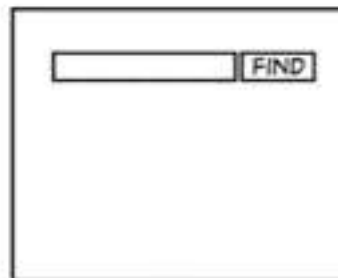
A: _____	E: _____
B: _____	F: _____
C: _____	G: _____
D: _____	H: _____

Wrong

TYPICAL APPLE PRODUCT...



A GOOGLE PRODUCT...



YOUR COMPANY'S APP...

FIRST NAME:	<input type="text"/>	TYPE CD:	<input type="text"/>	<div>4 - K AA2- DK98 KKA? CN3 AA-9</div> <div>NEW DEL</div>
LAST NAME:	<input type="text"/>	TQP STAT:	<input type="checkbox"/>	
SSN:	<input type="text"/>	VER:	<input type="text"/>	
ID:	<input type="text"/>	CAT CD:	<input type="text"/>	
PHONE 1:	<input type="text"/>	CITY:	<input type="text"/>	
PHONE 2:	<input type="text"/>	STATE:	<input type="text"/>	
ADDR 1:	<input type="text"/>	ZIP:	<input type="text"/>	
ACCT #:	<input type="text"/>	ORD #:	<input type="text"/>	
<div>OKAY APPLY SAVE UNDO HELP DELETE EDIT</div> <div>SELECT BROWSE ERRORS</div>				

