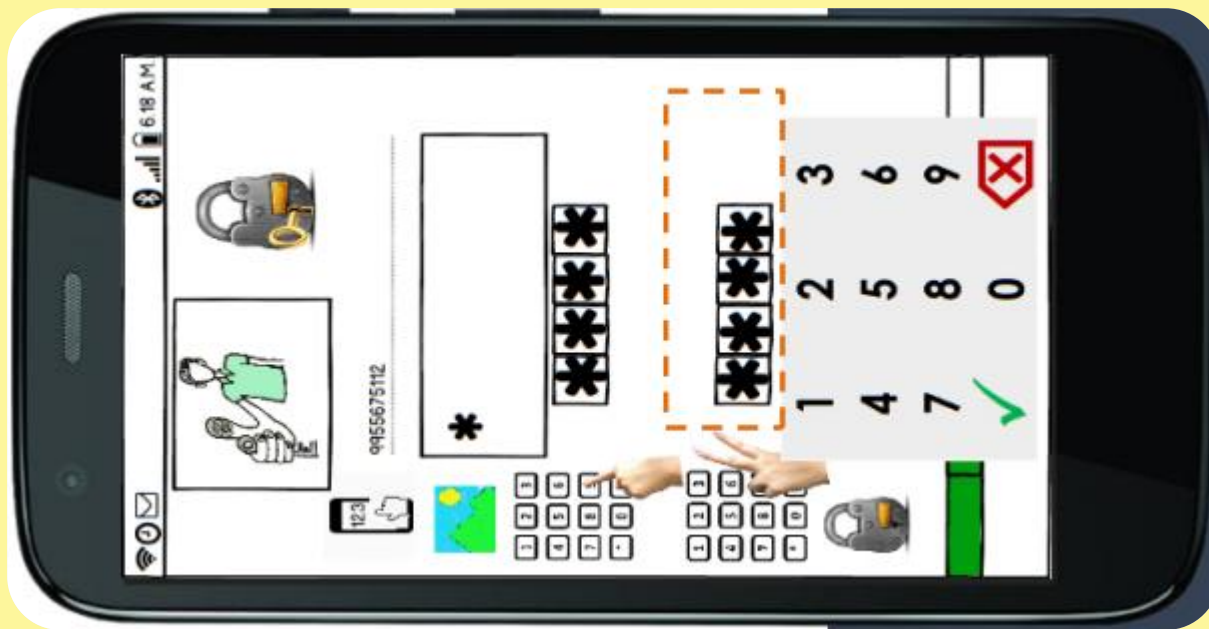


Text Free Interfaces

Lecture 17: CSE 490c



Announcements

- New Homework Available
 - Paper on Low Literate user interfaces
 - Programming Assignment 2 due Monday
- Lecture Schedule

Lecture 15	Monday, October 29	DFS and Gender workshop
Lecture 16	Wednesday, October 31	SMS Fraud and ROSCAs
Lecture 17	Friday, November 2	Low Literate UIs
Lecture 18	Monday, November 5	Data Collection
Lecture 19	Wednesday, November 7	Task Support
Lecture 20	Friday, November 9	Mobile Wallet Applications



ICTD History

- Around 2003 multiple initiatives
 - TIER, Technology and Infrastructure for Emerging Regions, Eric Brewer
 - UW, Tapan Parikh
 - Microsoft
- Berkeley Workshop followed by ICTD Conference

TEM

Technology for Emerging Markets

- Microsoft Research India founded in 2004 in Bangalore
- Range of research groups
- Kentaro Toyama founded TEM group
- Focus on technology and development challenges



Multipoint

- Schools had limited access to computers
- Usually many children working at a computer, but use dominated by an aggressive boy
- Solution
 - Develop support for multiple mice
 - Design learning games with



Warana Unwired



- Replace Rural PC with mobile phones



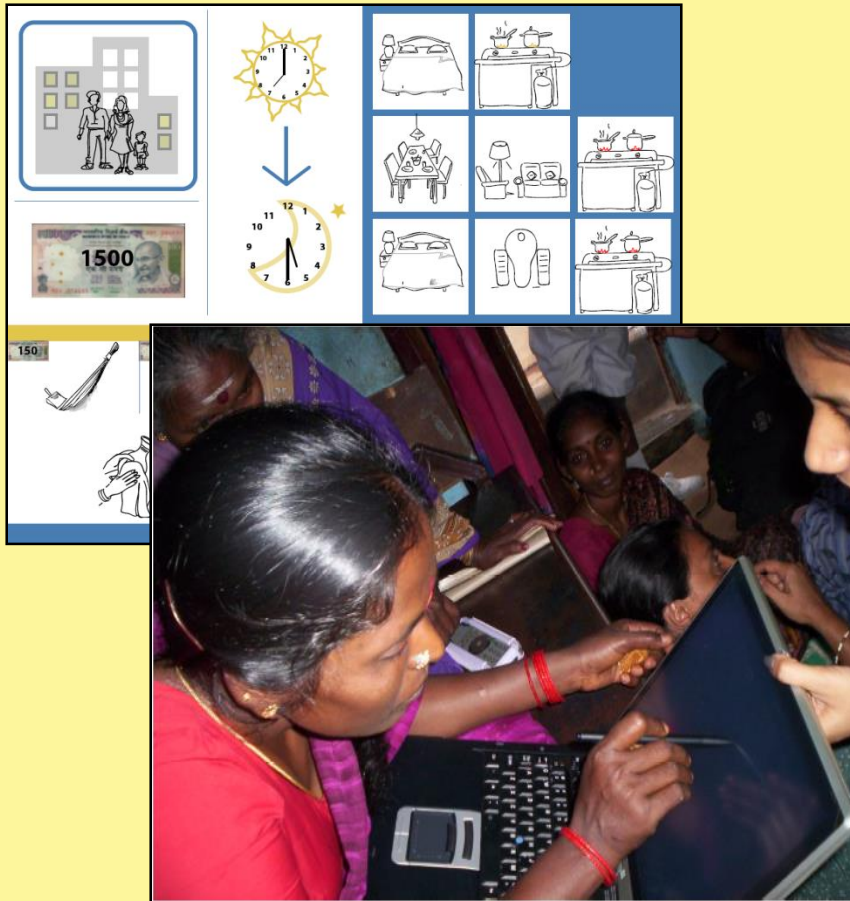
digitalGREEN

Digital Green



Text-Free User Interfaces

Job search for domestic laborers

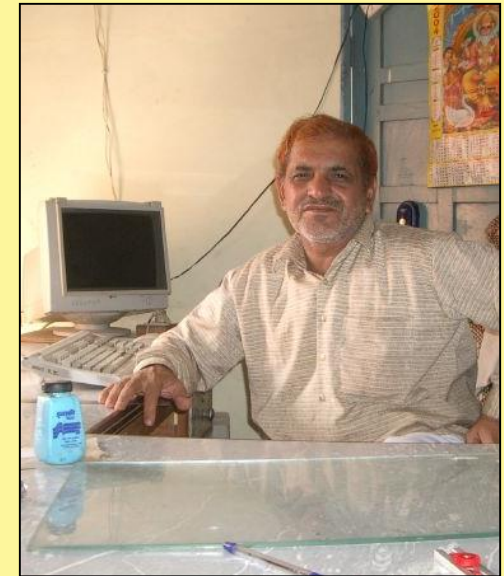


Problem: Can a UI be developed to allow an illiterate, first-time PC user to access needed information without any assistance or prompting?

Solution: Liberal use of semi-abstracted cartoons; voice feedback; introductory video for broad context

Subjects who initially don't want to touch the PC become engaged users; subjects who can read a little bit, still prefer text-free UI.

Rural Computing Kiosks



Kentaro Toyama



Designing for Low-Literate Users

- Good design practice
- Understanding users
- Testing and iteration

Literacy

- Spectrum of literacy
- Numeracy vs. literacy
- Multiple languages and scripts
- Accessibility

Technology Use

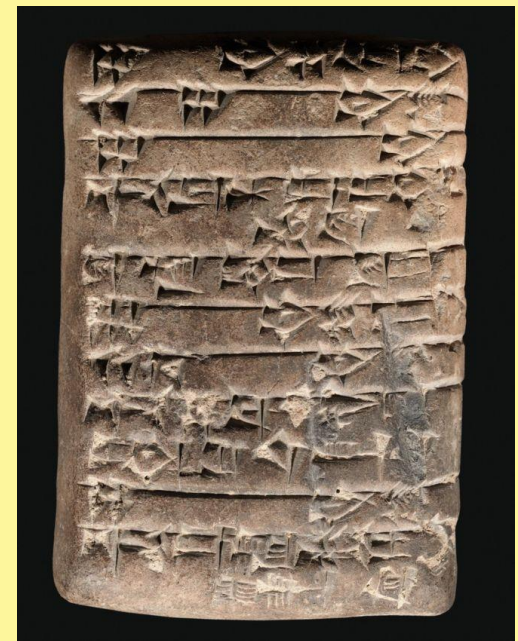
- Type of device has a big influence on UI
- Mental model of application is needed for use
- Intermediated use is important



Numeracy

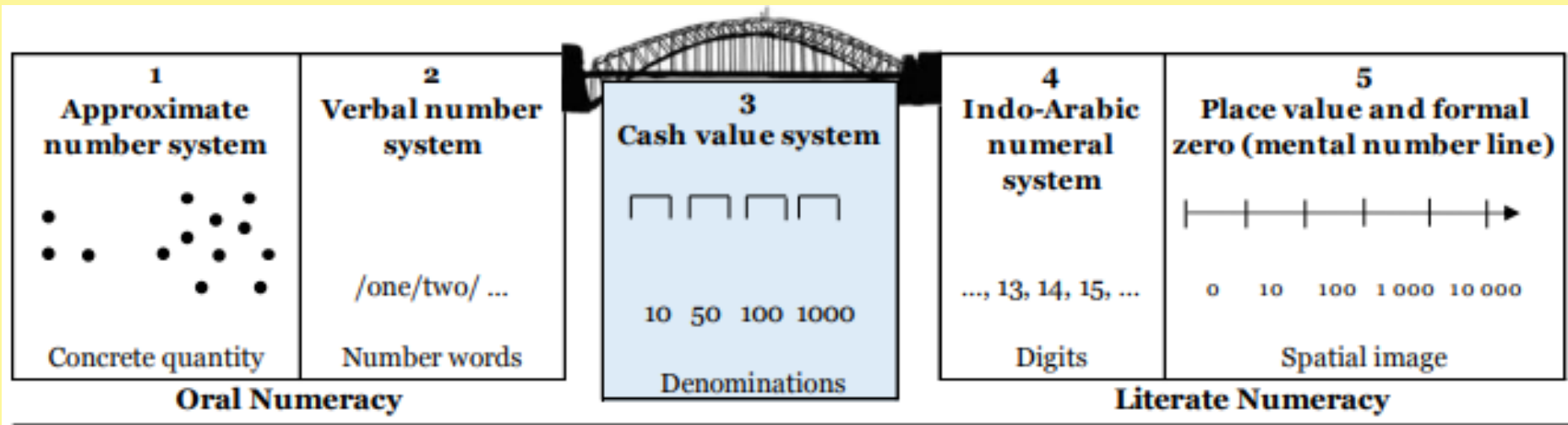
European (descended from the West Arabic)	0	1	2	3	4	5	6	7	8	9
Arabic-Indic	٠	١	٢	٣	٤	٥	٦	٧	٨	٩
Eastern Arabic-Indic (Persian and Urdu)	۰	۱	۲	۳	۴	۵	۶	۷	۸	۹
Devanagari (Hindi)	०	१	२	३	४	५	६	७	८	९
Tamil		௦	௧	௨	௩	௪	௫	௬	௭	௮

- Oral versus written numeracy
- Range of competencies
 - Recognize digits
 - Recognize two digit numbers
 - Longer numerical strings
 - Mathematical operations



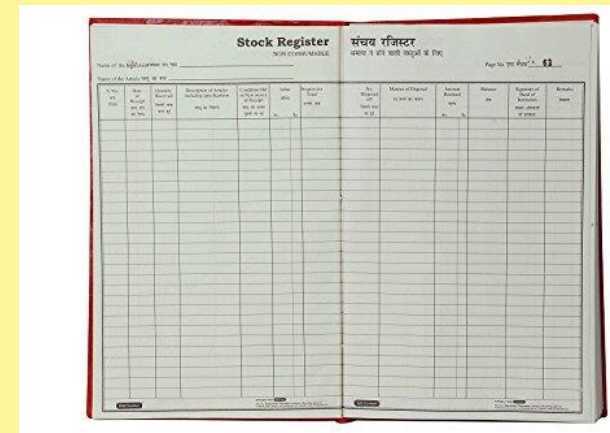
Financial Numeracy

- Use of cash has been observed as a bridge between oral and written numeracy
- People have been observed to do calculations with cash that they cannot perform without cash



Design Observations

- Text Free is not Number Free
- Local language text should be used (even if people can't read it)
- Audio is important
- Tabular Data organization
 - People are familiar with paper forms and ledgers, even if they can't read
- Use of color is important



Icon Design

- Realistic sketches or photos

- Action cues



- Icons subject to misinterpretation



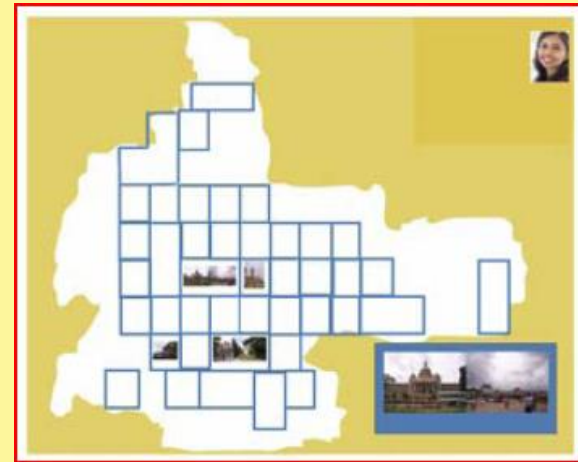
Negative Observations

- Use of numbers for task flow
- Abstract representations



Geography

- Pictures for navigation to augment maps



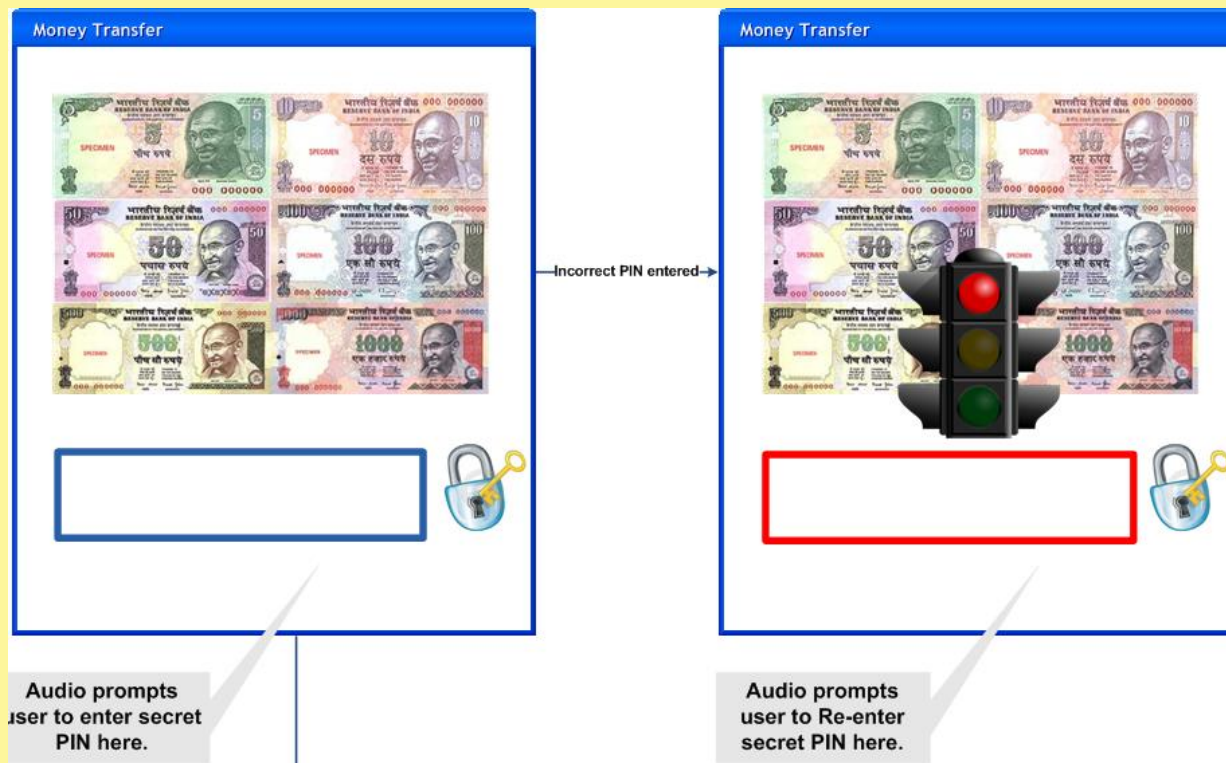


User Assistance

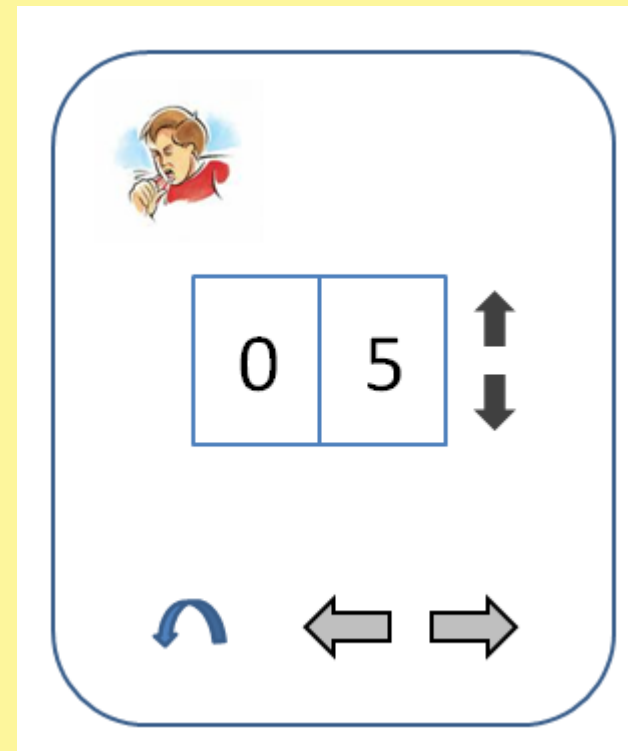
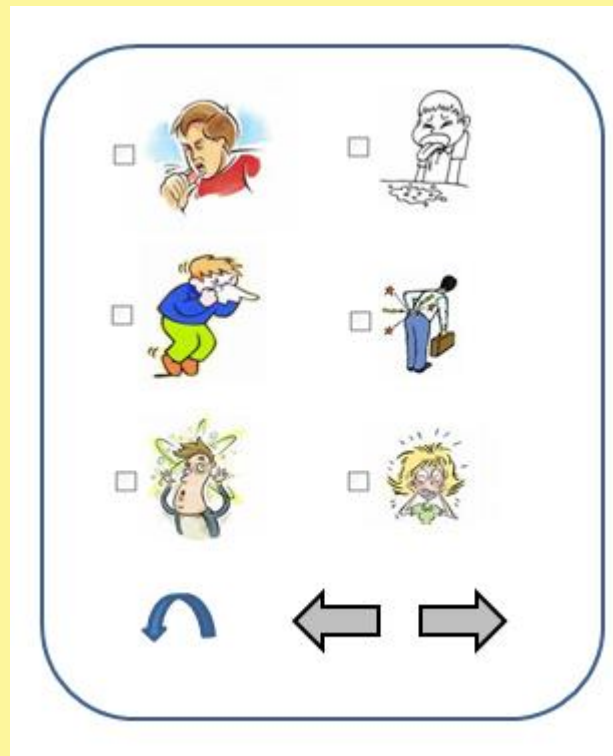
- Audio help files on each screen
- Audio prompts on meaning of buttons
- Practice area

Text Free UI Examples

- Money Transfer
Urban bank to rural location



Ez-IMCI



IMCI

THEN ASK ABOUT MAIN SYMPTOMS:

Does the child have cough or difficult breathing?

IF YES, ASK: LOOK, LISTEN, FEEL:

- For how long?
- Count the breaths in one minute.
- Look for chest indrawing.
- Look and listen for stridor.

CHILD MUST BE CALM

Classify COUGH or DIFFICULT BREATHING

If the child is:	Fast breathing is:
2 months up to 12 months	50 breaths per minute or more
12 months up to 5 years	40 breaths per minute or more

SIGNS

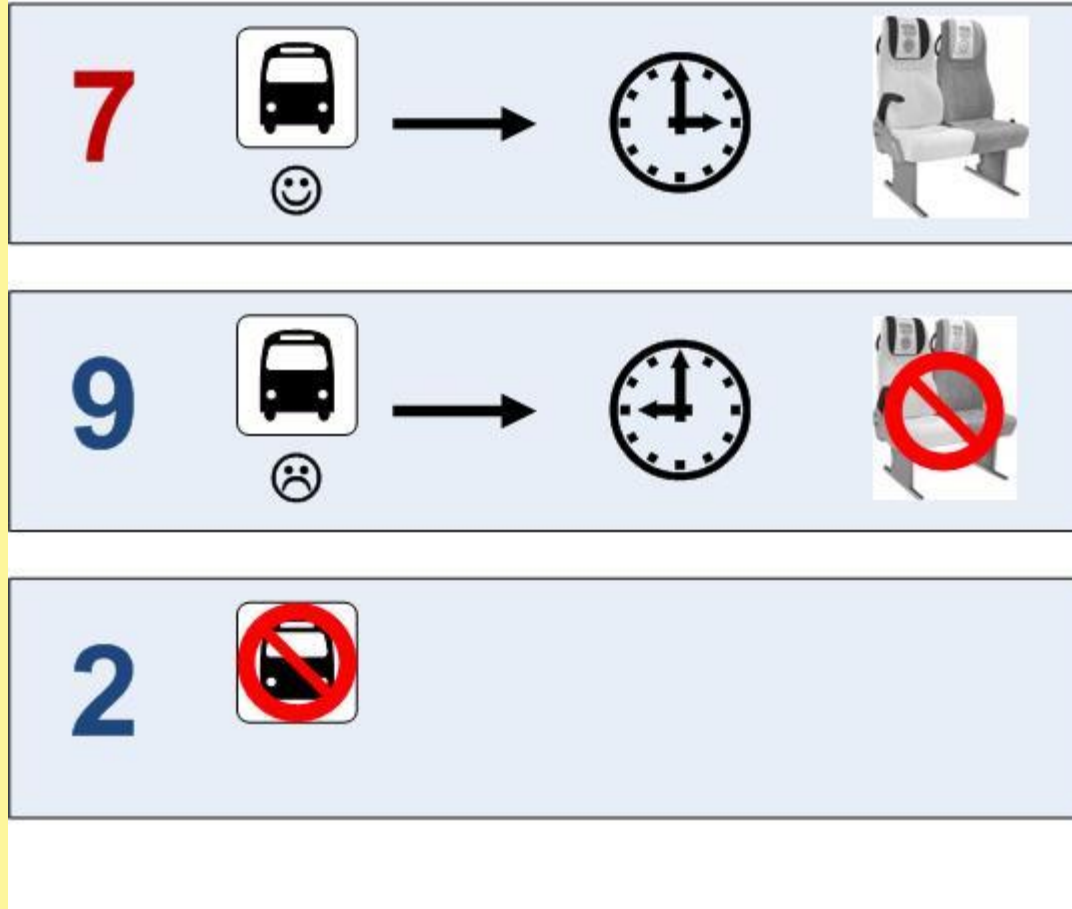
CLASSIFY AS

TREATMENT

(Urgent pre-referral treatments are in bold print.)

<ul style="list-style-type: none"> • Any general danger sign or • Chest indrawing or • Stridor in calm child. 	<p>SEVERE PNEUMONIA OR VERY SEVERE DISEASE</p>	<ul style="list-style-type: none"> ➤ Give first dose of an appropriate antibiotic. ➤ Refer URGENTLY to hospital.*
<ul style="list-style-type: none"> • Fast breathing. 	<p>PNEUMONIA</p>	<ul style="list-style-type: none"> ➤ Give an appropriate antibiotic for 5 days. ➤ Soothe the throat and relieve the cough with a safe remedy. ➤ Advise mother when to return immediately. ➤ Follow-up in 2 days.
<p>No signs of pneumonia or very severe disease.</p>	<p>NO PNEUMONIA: COUGH OR COLD</p>	<ul style="list-style-type: none"> ➤ If coughing more than 30 days, refer for assessment. ➤ Soothe the throat and relieve the cough with a safe remedy. ➤ Advise mother when to return immediately. ➤ Follow-up in 5 days if not improving.

Transportation

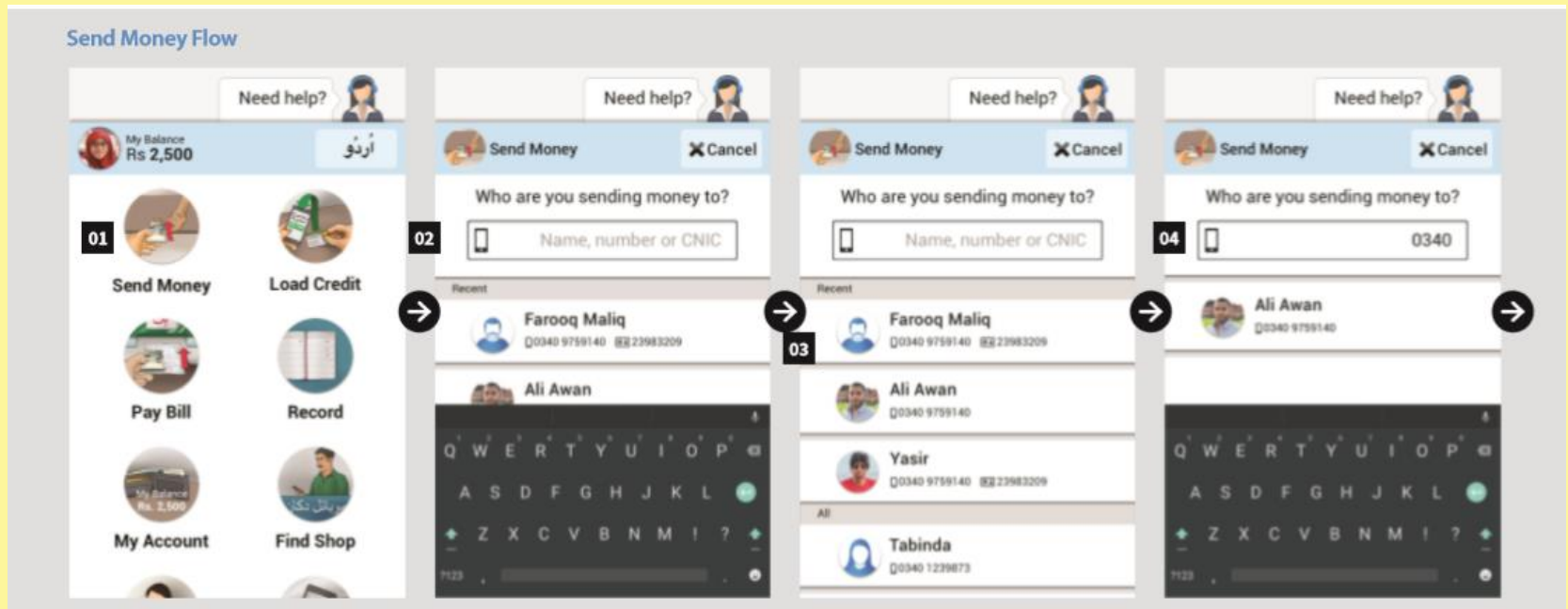


Medicine Tracking

The interface is divided into five vertical panels. The first panel shows a sun behind a cloud, a crossed-out pill, and a white pill. The second panel shows a bright sun and two red-and-white capsules. The third panel shows a crescent moon and a dark pill. The fourth panel shows a moon behind a cloud, a pill, a bottle, and a spoon with red powder. The fifth panel is a calendar grid with days 1-31. Green circles are on days 8 and 11. A red circle is on day 17. A green circle is on day 14. A red circle is on day 17.

SUN	MON	TUE	WED	THUR	FRI	SAT
		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	31		

GridImpact Wireframes for Mobile Money App



Grid Impact Icons



ROSCA APP

