19CSE100 Problem Solving and Algorithmic Thinking

Problem Definition and Comprehension

Lecture 3

- ATM for kids

Dig deeper into the problem

- Why ATM for Kids?
- Height of machine ?
- Design of the interface ?
- Functionalities of ATM
- Security aspect

Why ATM for Kids? – Kids Perspective

- Why would a 5 to 12-year-old need to access the ATM?

  - money for bus fare, school lunch, snacks, gifts, etc.

  - deposit allowance and earned wages or gifts (from a newspaper route, gift from grandparents, etc.)

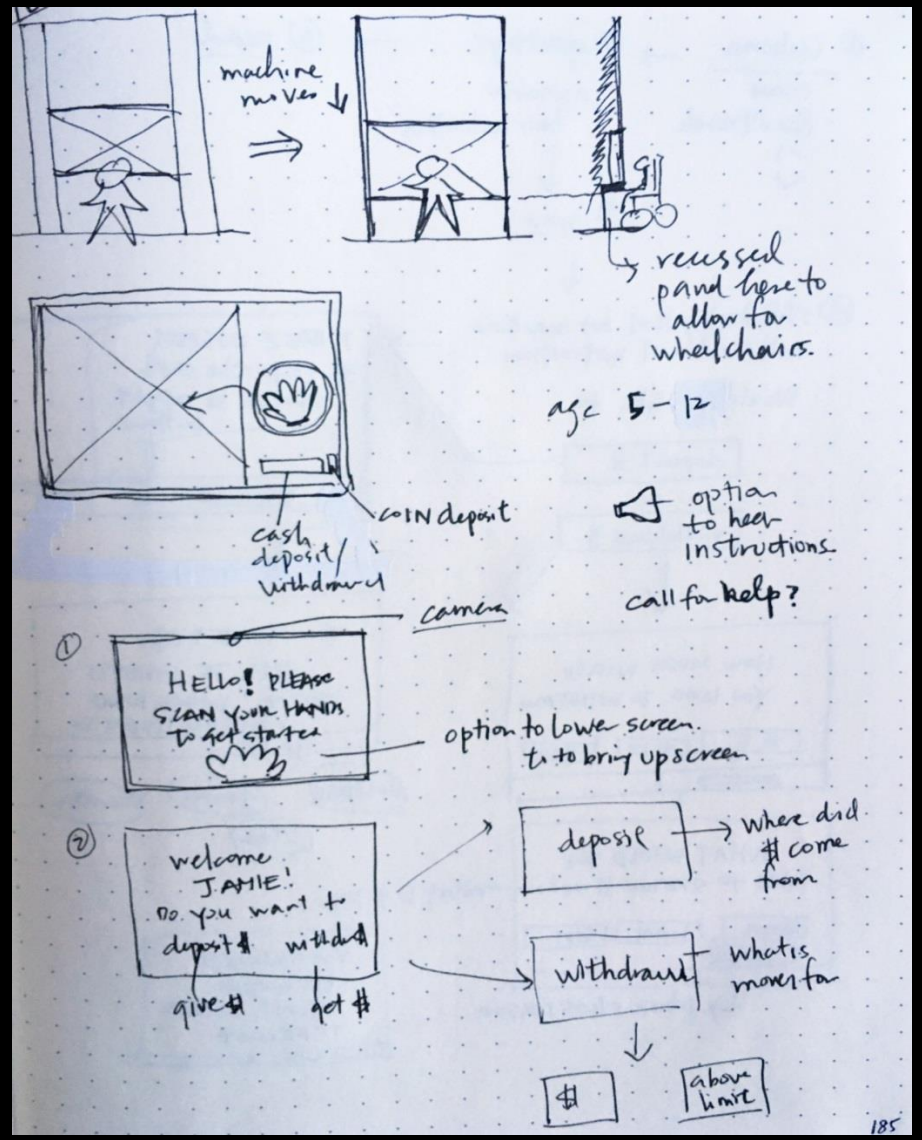
Why ATM for Kids? – Parents's Perspective

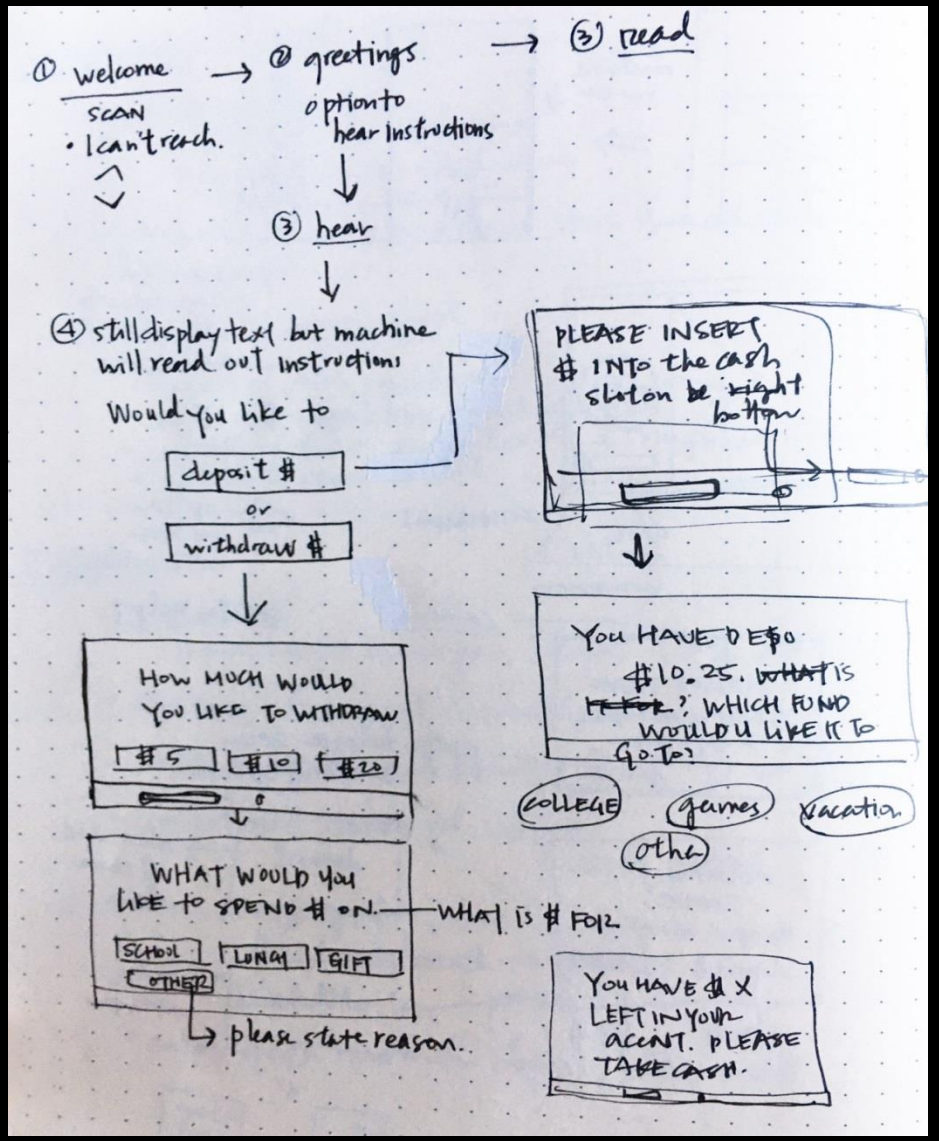
- Why would parents of 5 to 12-year olds want their children to be able to have their own account and access their own money?
  - There are teachable moments in earning and spending one's own money.
  - Perhaps the level of thought needed to make financial transactions, at however small a scale, can lead to a sense of self-reliance.
- Perhaps asking children to make these financial decisions can teach them, at an early age, about financial liquidity.

Constraints…. !

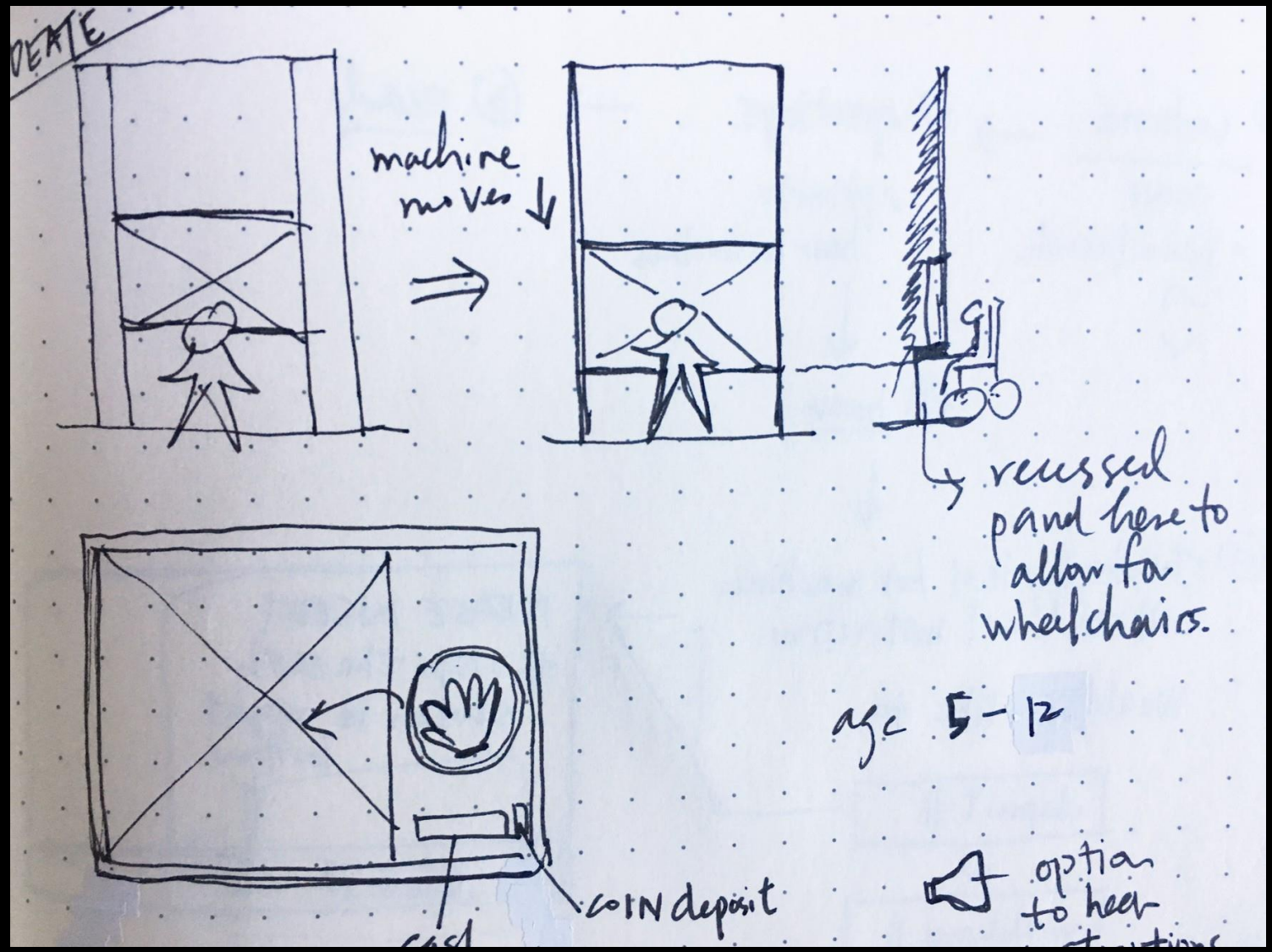
- What are the necessary constraints that must be taken into account when designing an ATM that caters to a 5 to 12-year-old child?
  - varying heights of children ages 5 to 12
  - ability or lack of ability to digest information in a somewhat technical language (deposits, withdrawal, over draft, etc.)
  - ability to remember to take out a debit card after withdrawal
  - ability to remember a PIN

Ideate...!

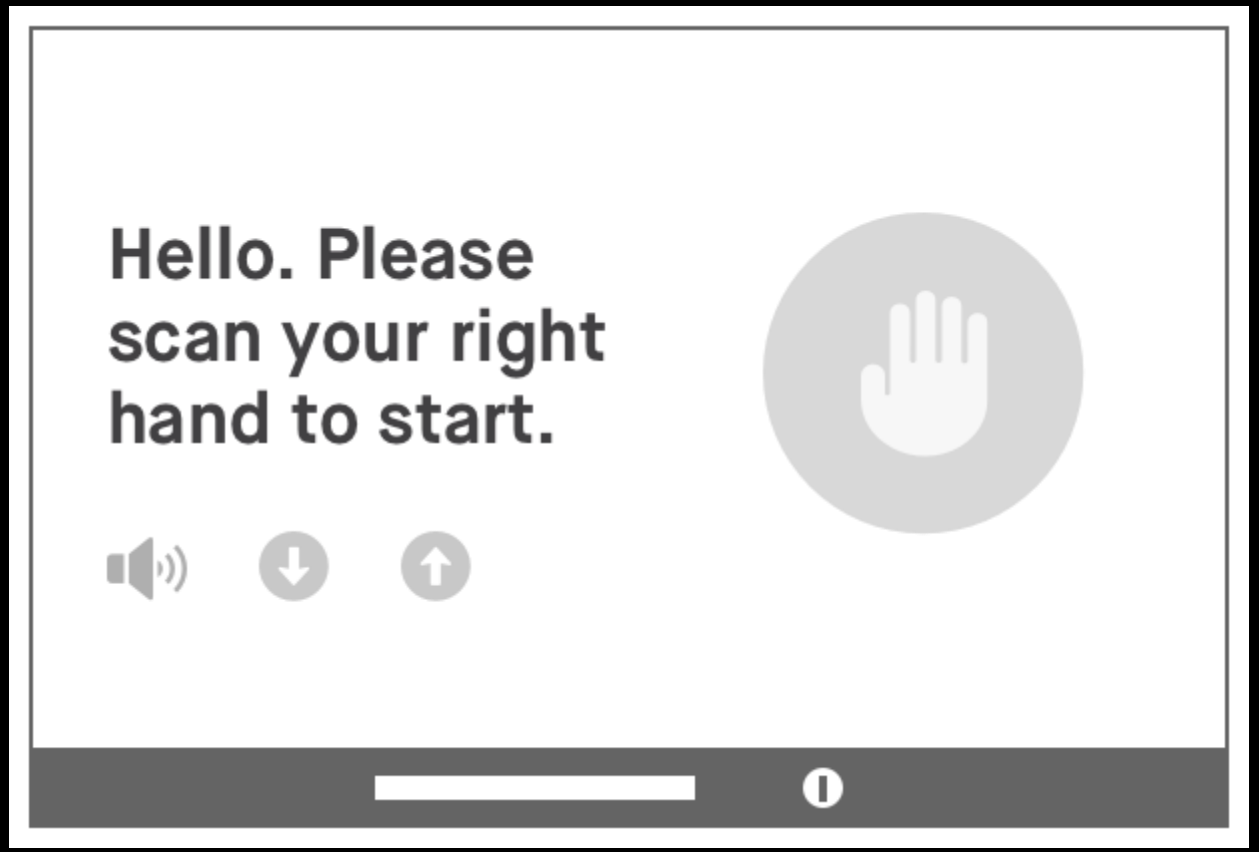

machine moves
recessed panel here to allow for wheelchairs.
age 5-12
coin deposit
cash deposit/ withdrawal
option to hear instructions
call for help?
camera
HELLO! PLEASE SCAN your HANDS to get started
option to lower screen. ↑ to bring up screen
welcome JAMIE! do you want to deposit $ withdraw $
give $
get $
deposit
where did $ come from
withdrawal
what is money for
$
above limit
185


① welcome
SCAN
• I can't reach.
② greetings
option to hear instructions
③ hear
③ read
④ still display text but machine will read out instructions
Would you like to
deposit $
or
withdraw $
PLEASE INSERT $ INTO the cash slot on the right bottom
How much would you like to withdraw
$5 $10 $20
You have 0 $0
$10.25. WHAT is it for? WHICH FUND WOULD U LIKE IT TO GO TO?
college
games
vacation
other
WHAT would you like to spend $ on.
WHAT is $ FOR.
SCHOOL
LUNCH
GIFT
OTHER
please state reason.
You have $ X LEFT IN YOUR ACCNT. PLEASE TAKE CASH.

Close up of height-adjustment

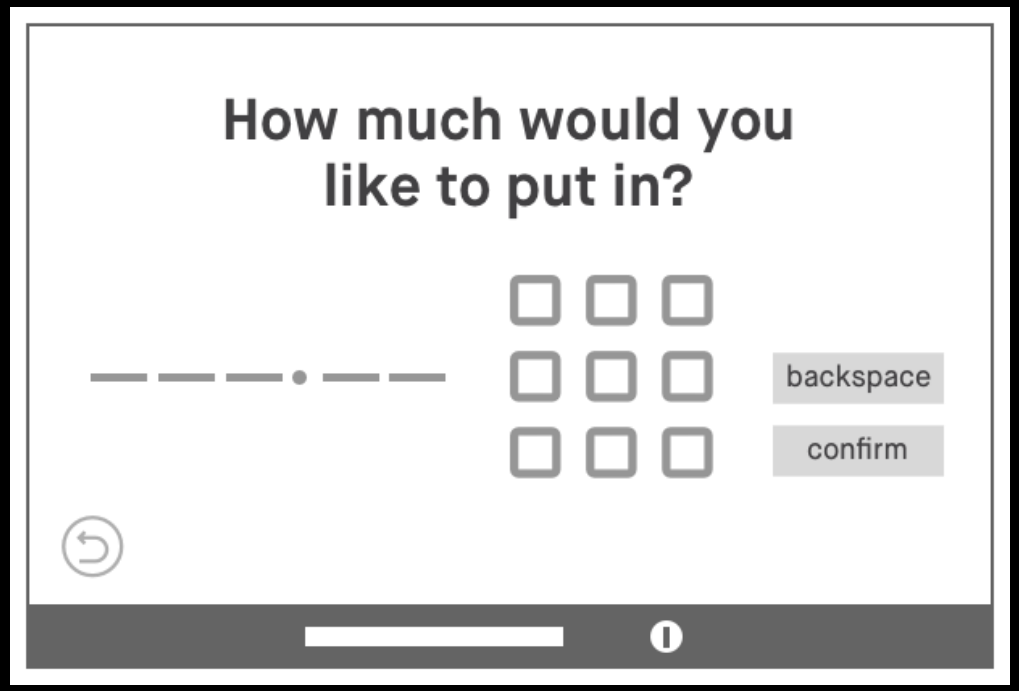


Prototyping… Welcome Screen



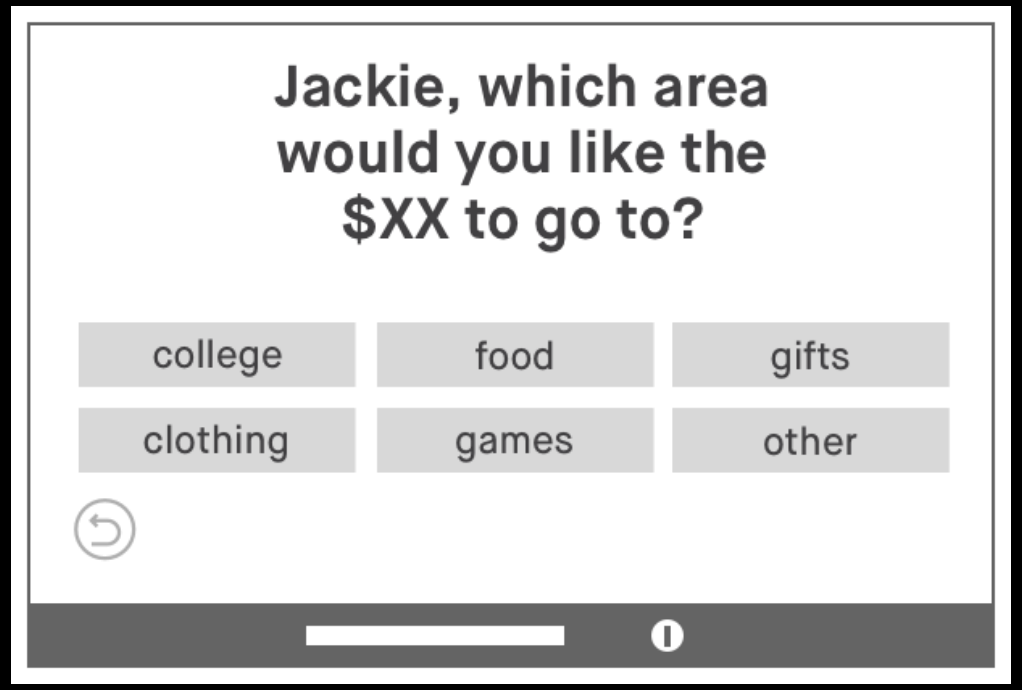
Instead of deposit or withdraw, I thought “put in” and “take out” would make more sense for the user.

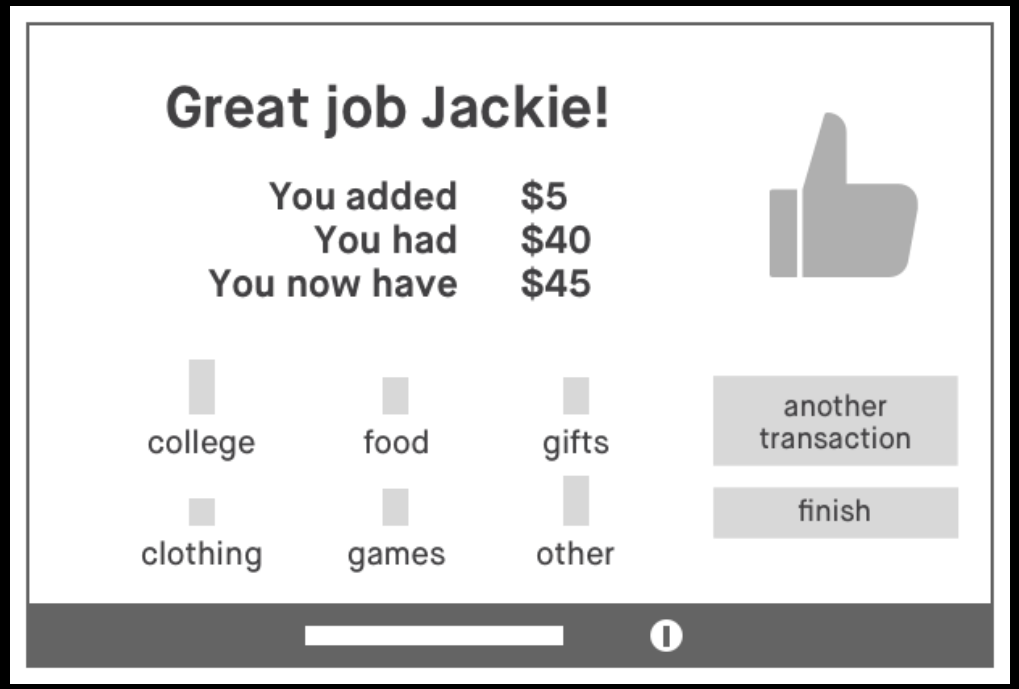
If the user selects “put in” money, a prompt for the amount of money would come next. Cash and coins can be inserted in the panel below the interface.



Please insert
money below.

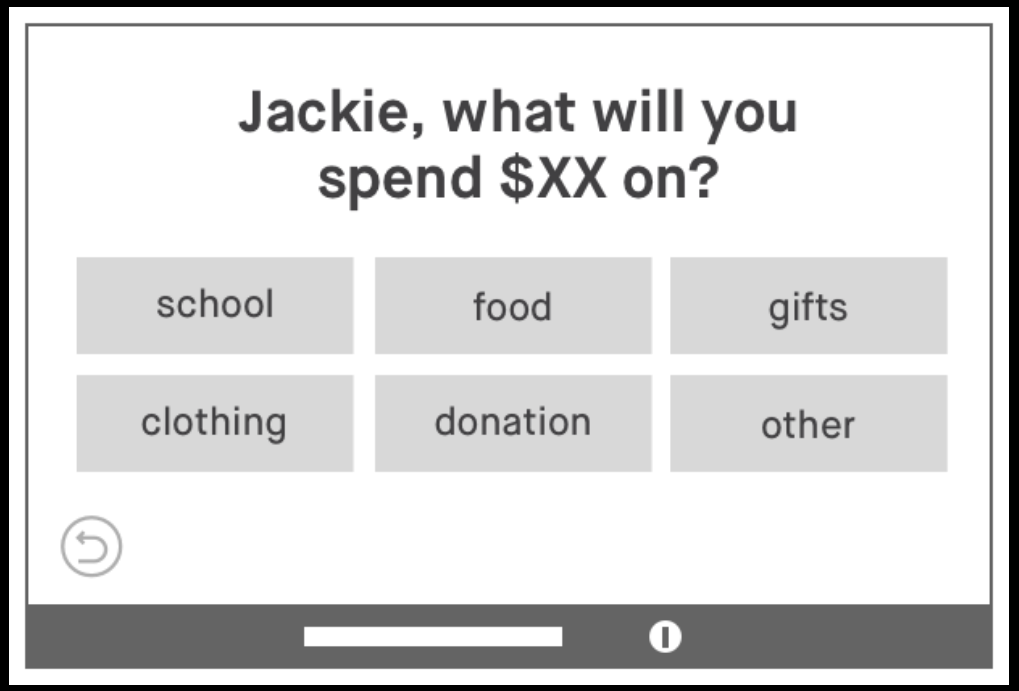
Designate which category the money goes into

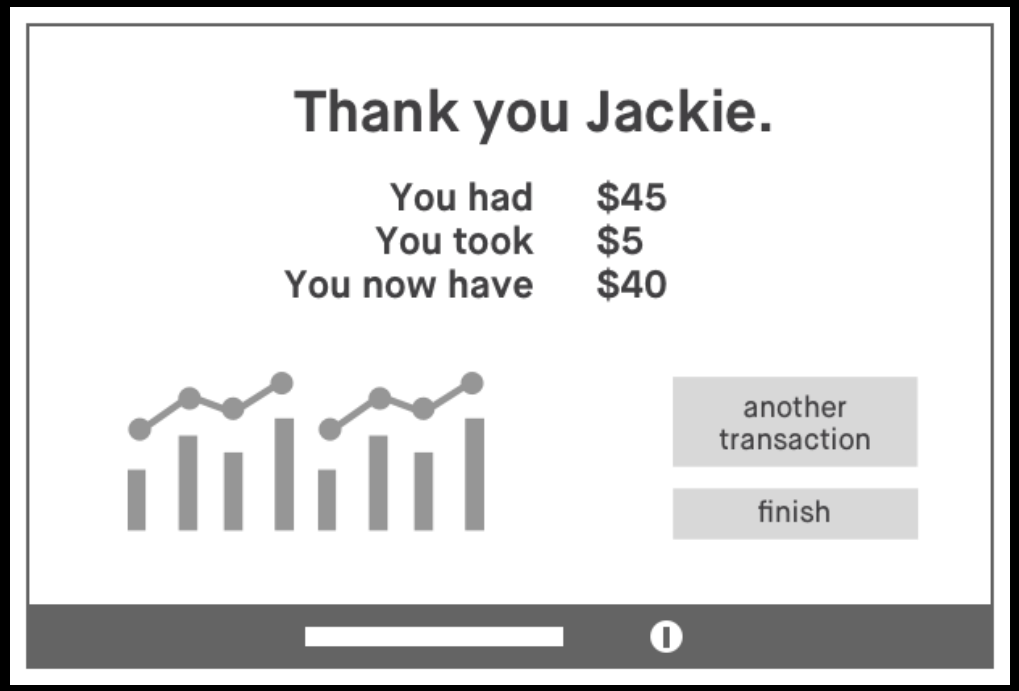




Withdrawal work flow (can be determined by the parents during account set-up)

Accountability…!





Other Circumstances…

- For example, what happens if the child is under duress?
- What if a school bully is making the child withdraw money.
- Should there be a panic button?
  - What does it do?
  - How do we prevent the abuse of this panic button?

Auditory Option….

- Even if there is an auditory option,
  - how will the buttons be communicated?
  - Is it through voice commands instead of a visual interface?
  - If so, would you really want others to hear the account summary?
  - How can you keep the transaction private without bystanders hearing how much is in the account?

  Refer:

  https://medium.com/@khuangster/atm-for-kids-a-design-thinking-exercise-aedfa1745457

Takehome assignment Desert Survival

Your flight crashed in a desert and the above 10 items were saved before the flight caught fire. Prioritize them and explain your priority list.

ITEM
Torch
Pen Knife
Plastic Raincoat (large size)
Bandage Kit with Gauze
.45 Calibre Pistol (loaded)
Parachute (white and red)
1 litre of water per person
1 Pair of Sunglasses per Person
1 Coat per Person
Cosmetic Mirror

Credits: http://aircraftnut.blogspot.com/2013/10/pelican-16-down-sad-story-of-saaf.html