A POSTERIORI

Play · Experience · Learn

Name:		Class:	

Lesson 6 (Design Thinking)

Slides – https://a9i.sg/huayi
mBlock – https://ide.mblock.cc (start mLink too!)

Active Living

Active Living is about integrating physical activities into everyday life. It includes both functional activities (eg. Cycling to school), as well as recreational activities (eg. Jogging, Zumba).

ALP Project

For your ALP project, work in a group to achieve the following.

1. Research the problem
2. Design a device that encourages Active Living
3. Build a prototype
4. Write a report for your idea

Some ways you can encourage Active Living includes…

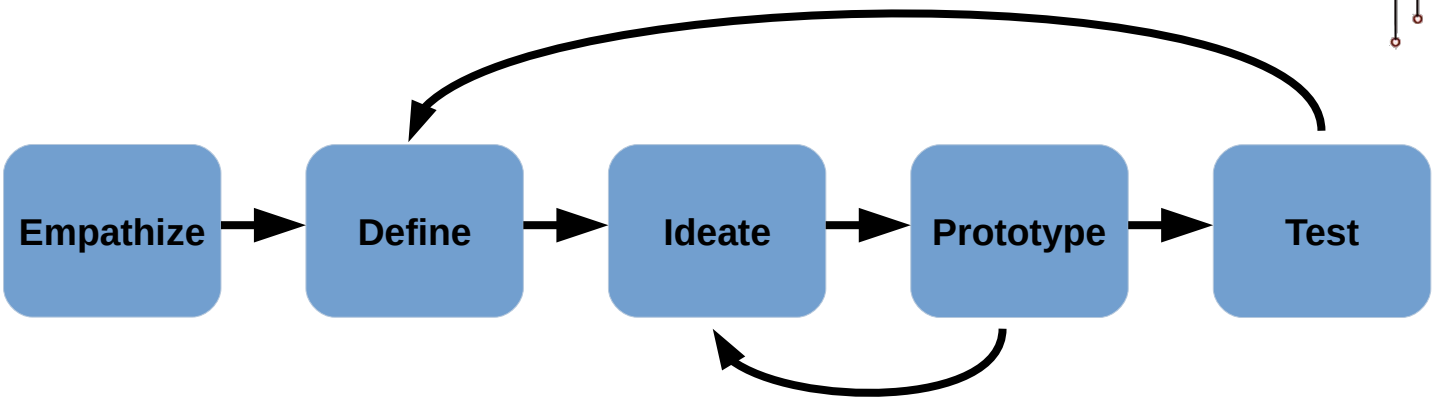
- Making it safer
- Making it more fun
- Improve ease of tracking progress
- Improve convenience
- Provide rewards for an active lifestyle
- Improve awareness of benefits

Your project need not target everyone, you may find it easier to target a single group such as…

- Students
- Working Adults
- Teenagers
- Elderly
- Disabled

Design Thinking is…

...not just art
...not just about how a product looks like
...about understanding what people need
...an iterative process in which we seek to understand the user, challenge assumptions, and redefine problems in an attempt to identify solutions.



5 Phases of Design Thinking

Empathize

Understand the human needs involved.

- Research and consult experts
- Observe, engage, empathize with users
- Immerse yourself in the same environment as the user (body storming)

Empathy Techniques

Interviews

- Prepare questions: How? What? Why?
  - (eg. How often do you exercise? What exercise do you do? Why do you exercise?)
- Test your questions on a team mate before actual interview
- Avoid negative questions
  - **Bad**: Why don't you exercise more?
  - **Good**: What did you enjoy most from your last exercise session?

Bodystorming

- Act out the situation or role that you are targeting
- Understand the problem and avoid assumptions
- Example:
  - Using exercise equipment while seated to understand difficulties faced by wheelchair users
  - Try jogging with foggy glasses to simulate the difficulties faced by elderlies with poor vision

ALP Project (Empathize)

Discuss in your group and fill in the following. **Make sure to keep this; you'll need to include it in your ALP report.**

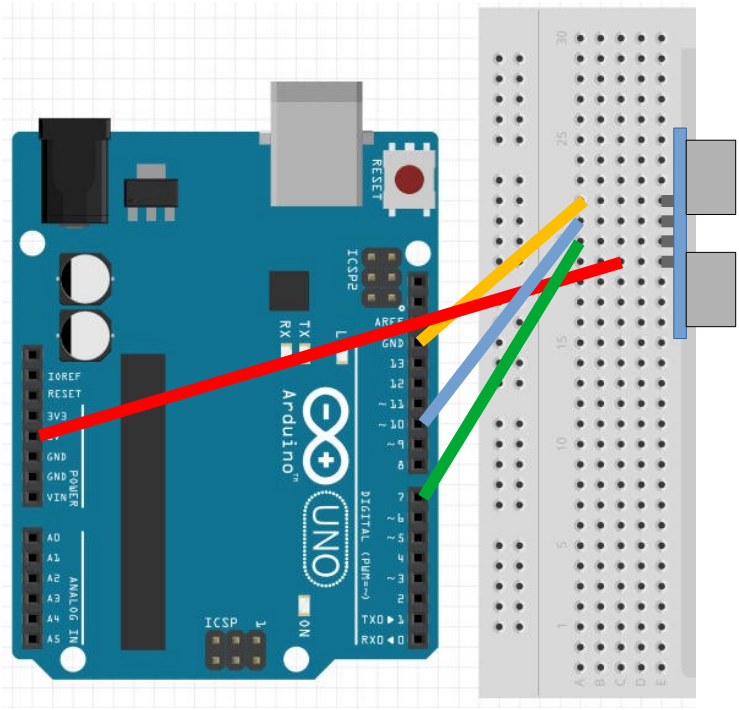
Who?
Who is your target group (eg. teens, elderly, working adults)

How?
How do you plan to understand them? (eg. interviews, observation, bodystorming)

Plan!
Prepare your interview questions, bodystorming plan, etc

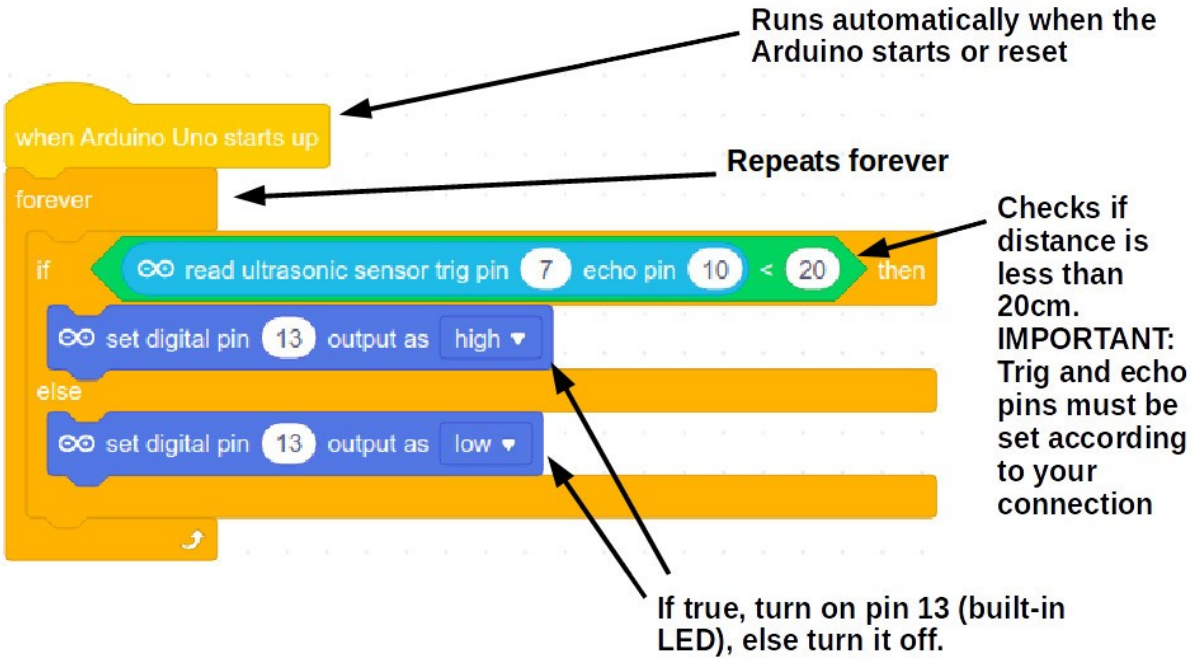
Ultrasonic Distance Sensor

- Works by sending pulse of sound and measuring how long it takes for echo to return
- Max range: 400cm
- **Doesn't work in "Live" mode**



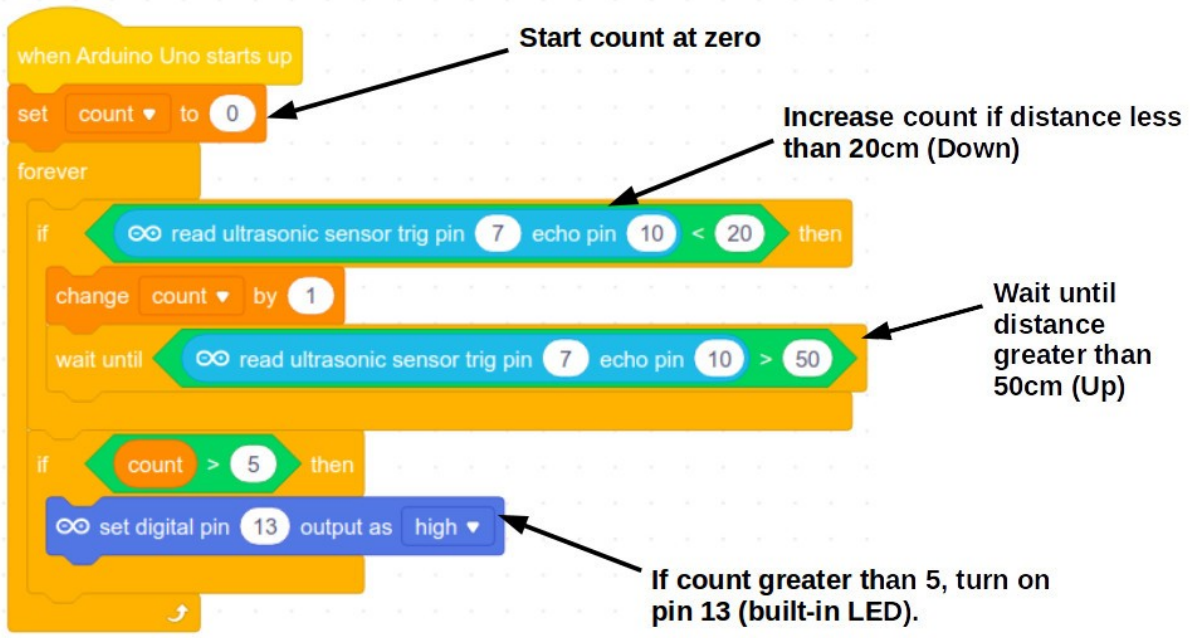
Pins Connections

Sensor	Arduino
Vcc	5V
Trig	Any I/O (Pin 2 to 12)
Echo	Any I/O (Pin 2 to 12)
Gnd	Gnd



Version 2

- Version 1 can only detect push-up, but not count them
- A single push-up consists of two actions…
  - Going down
  - Returning up
- Our program should detect both of these



Discuss!

How can you use the ultrasonic distance sensor for Active Living?