3E GADGETS

Electronics, Arduino & You

What is the Arduino

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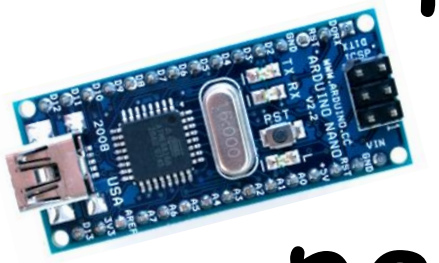
Basically, an electronic processor that takes inputs from sensors, performs processing and controls outputs accordingly.



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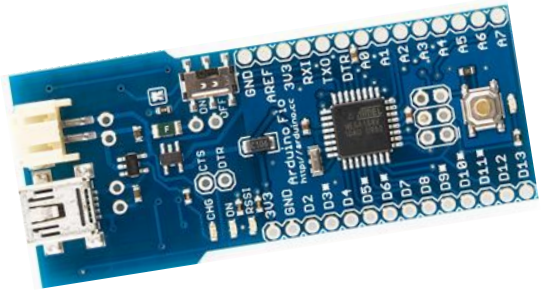

What it consist of ?

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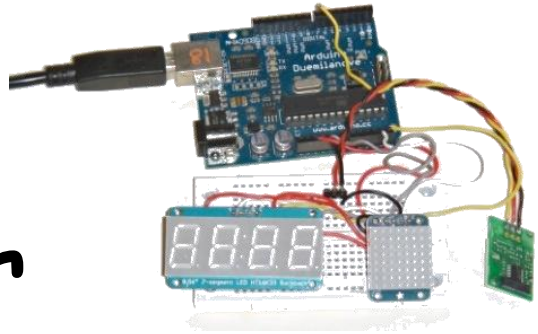
Arduino Platform

- Microcontroller
- Serial Bootloader
- Integrated Design Environment (IDE)
- Philosophy



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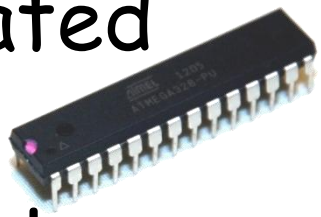
A Microcontroller is …

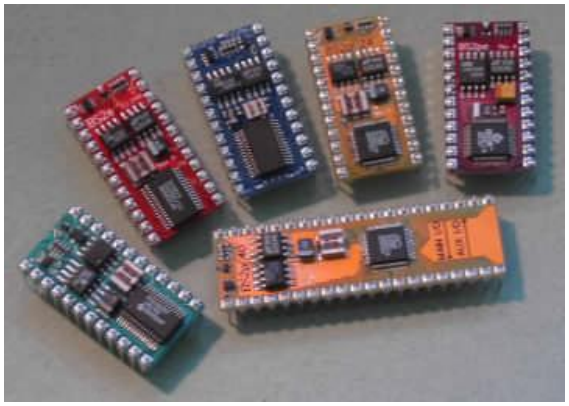
- Also called Microcontroller Unit or MCU or µC or embedded controller
- A small computer on a single Integrated Circuit (IC)

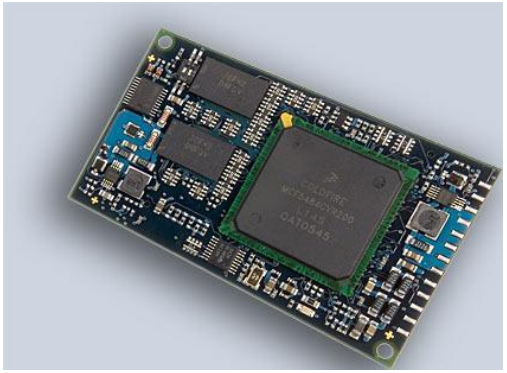


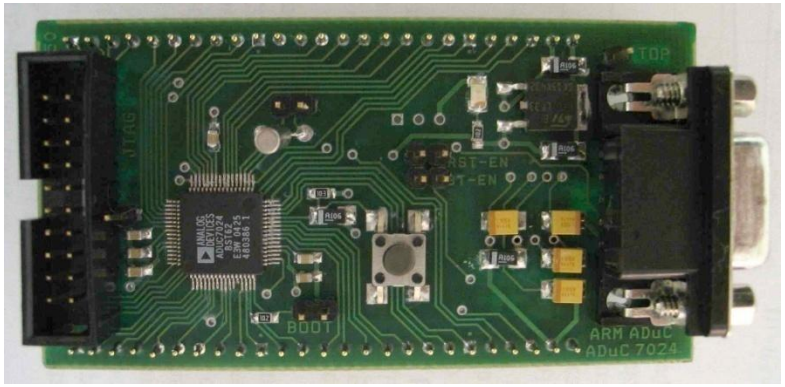
- Consist of single CPU, digital and analogue inputs & outputs (I/Os) & memory
- Found in many every-day products such as micro-wave ovens, phones, clock and etc……

Microcontrollers out there

- Atmel
- Microchip
- Freescale
- Toshiba
- Zilog







zilog

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A Bootloader is …

A program already on the microcontroller that facilitates device programming using only the USB port and cable

instead of dedicated programming device

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Integrated Design Environment (IDE) is…

- An application program on the PC for program development
- Free, common, easy to use interface
- 'C' like language

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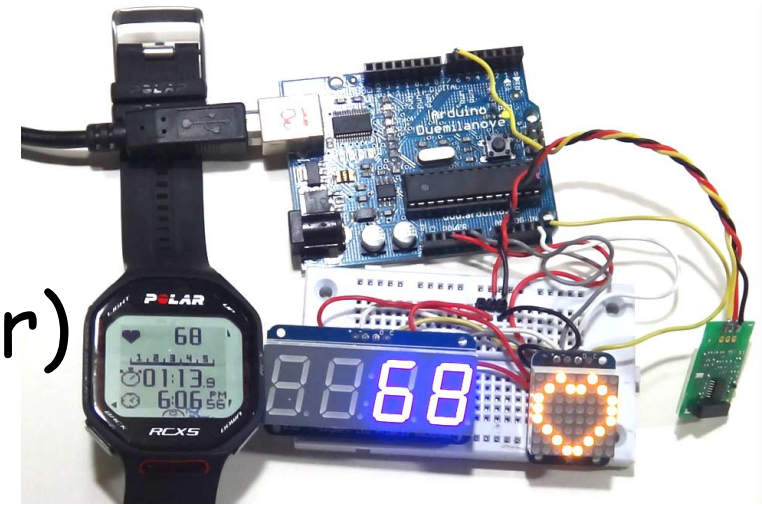
Philosophy

- Show you that it is easy to make something from readily available parts hoping you'll be inspired to start making and creating
- Related to the Maker movement and the Open-source movement
- Encourages Creativity
- Non-intimidating
- Play & experiment (tinker)



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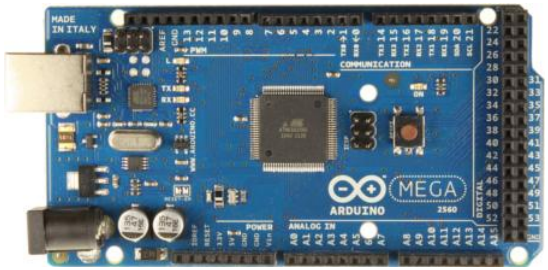
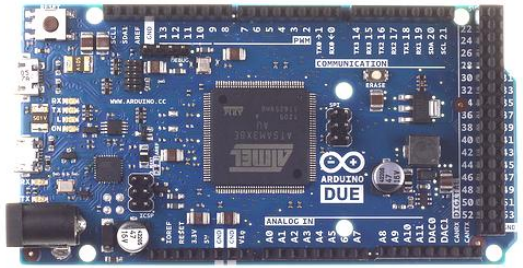
Some Arduino Boards
(from arduino.cc)

Arduino Uno

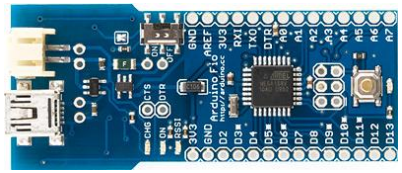


Arduino Mega 2560



Arduino Due

Arduino Nano

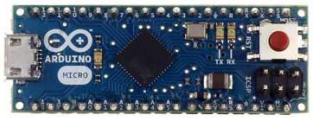


Arduino Fio

Arduino LilyPad

Arduino Pro Mini

Arduino Ethernet



Arduino Micro

Arduino Pro

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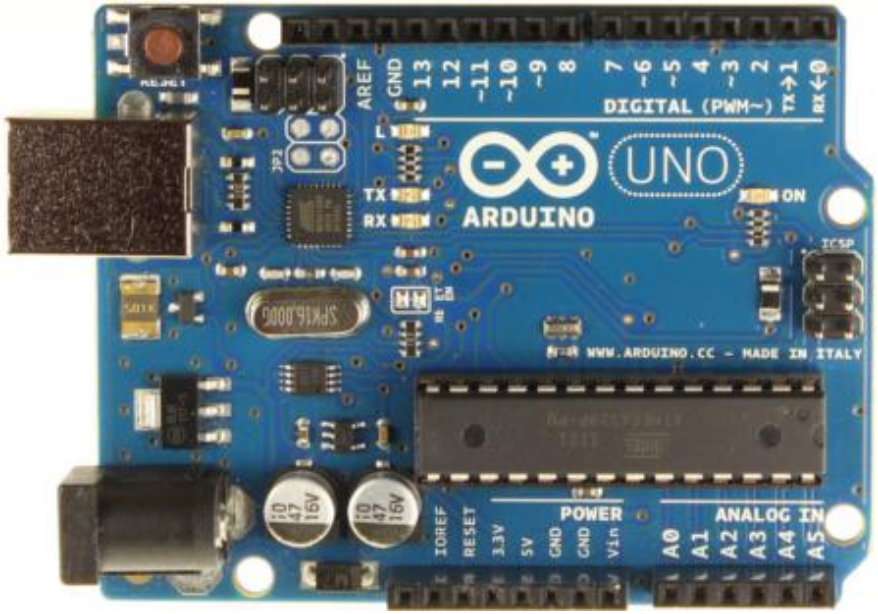
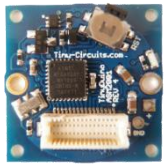
Tiny Arduino Board



Arduino Uno



TinyDuino

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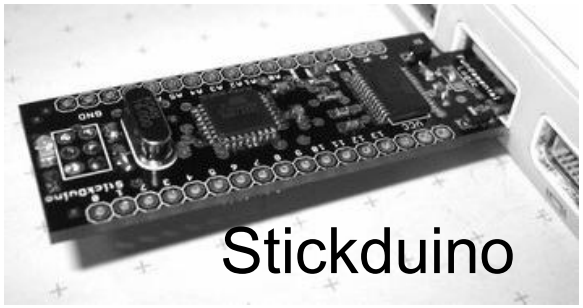
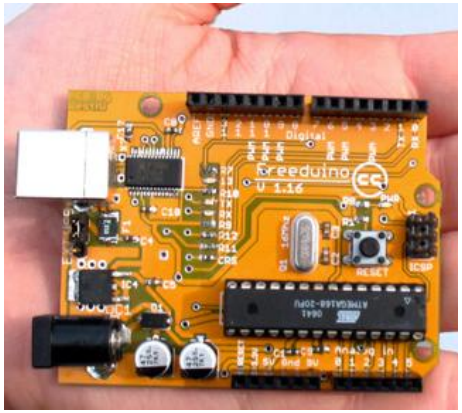
Arduino 'cousins'



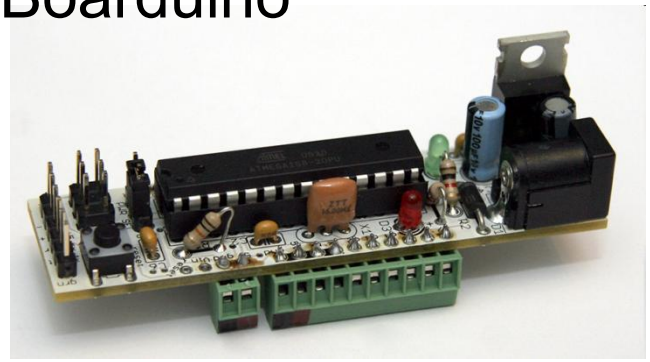
Stickduino



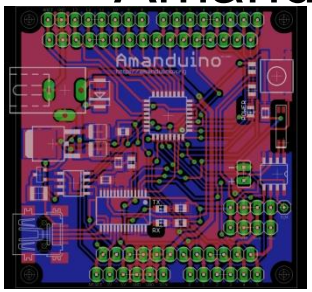
Freeduino

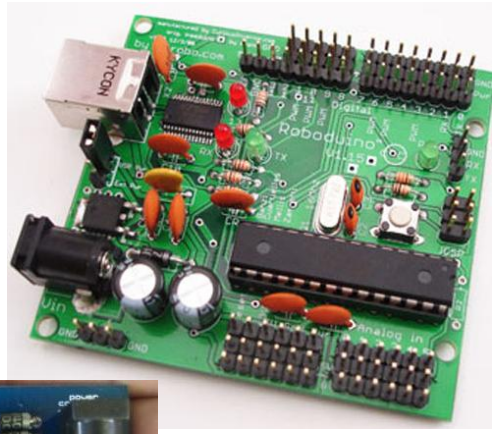
Single-sided

Boarduino

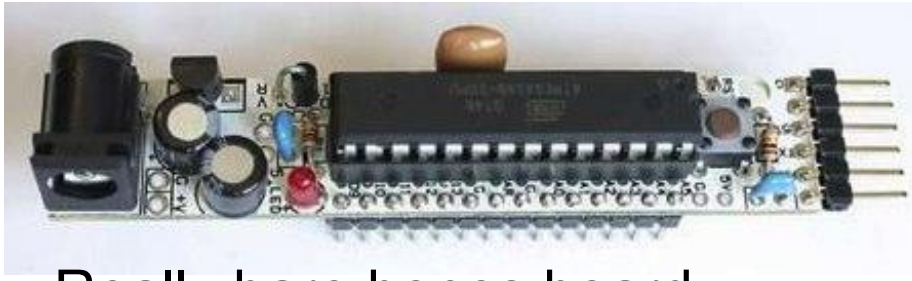


Amanduino

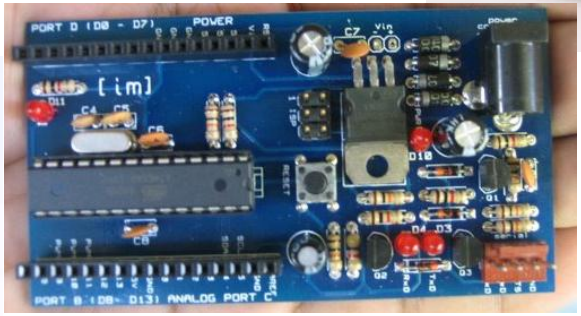




Roboduino



Really bare bones board



[im]Duino

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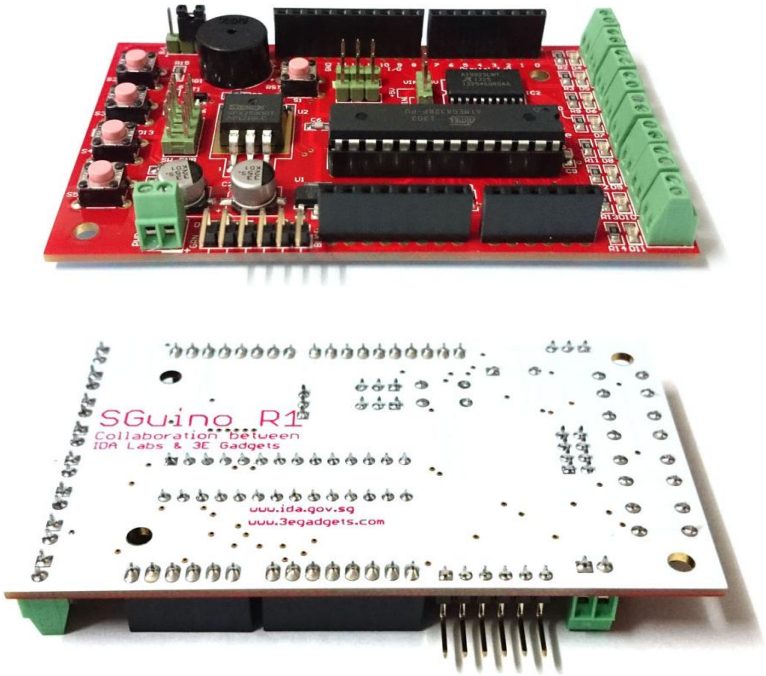
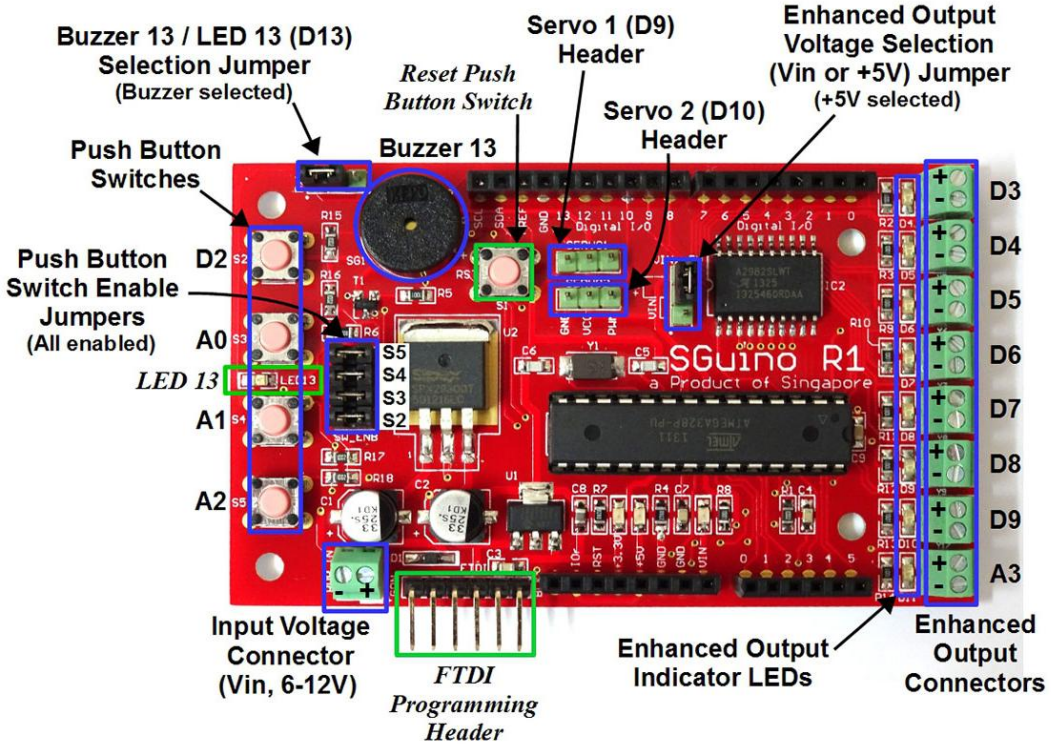
SGuino : Singapore's Arduino
(From 3E Gadgets, launched in 2014)





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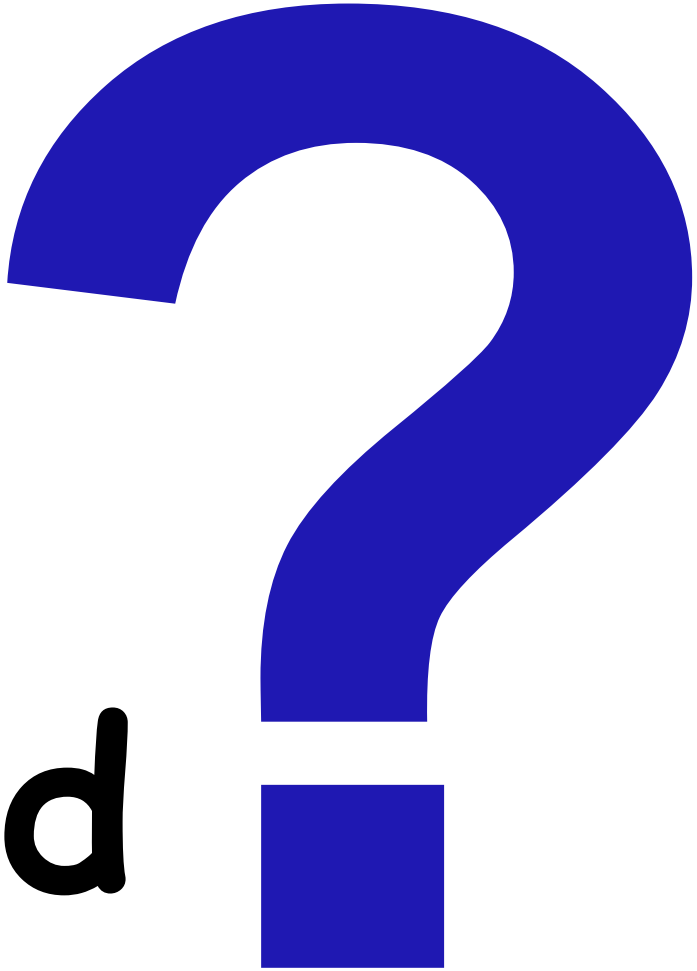
What can be connected



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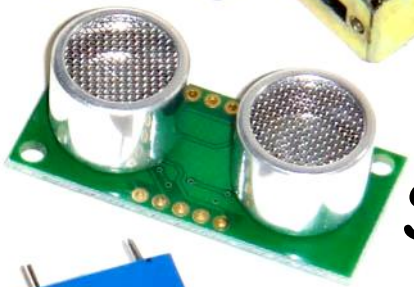
Arduino can be connected to…

LED

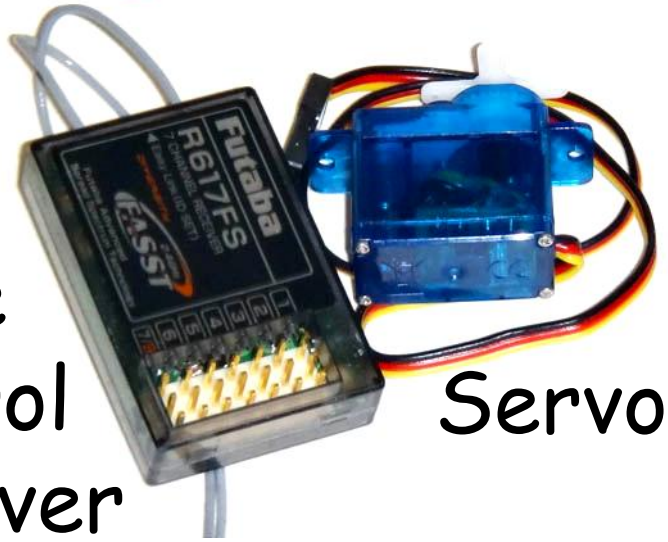
Switch

Potentiometer



Sensor

Relay



Remote Control Receiver

Servo

and many many many more

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What can be made

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Iron Man Helmet

Foam structure

Arduino & Electronics

Completed Helmet

Open Sesame

Close Sesame

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The last part is YOU

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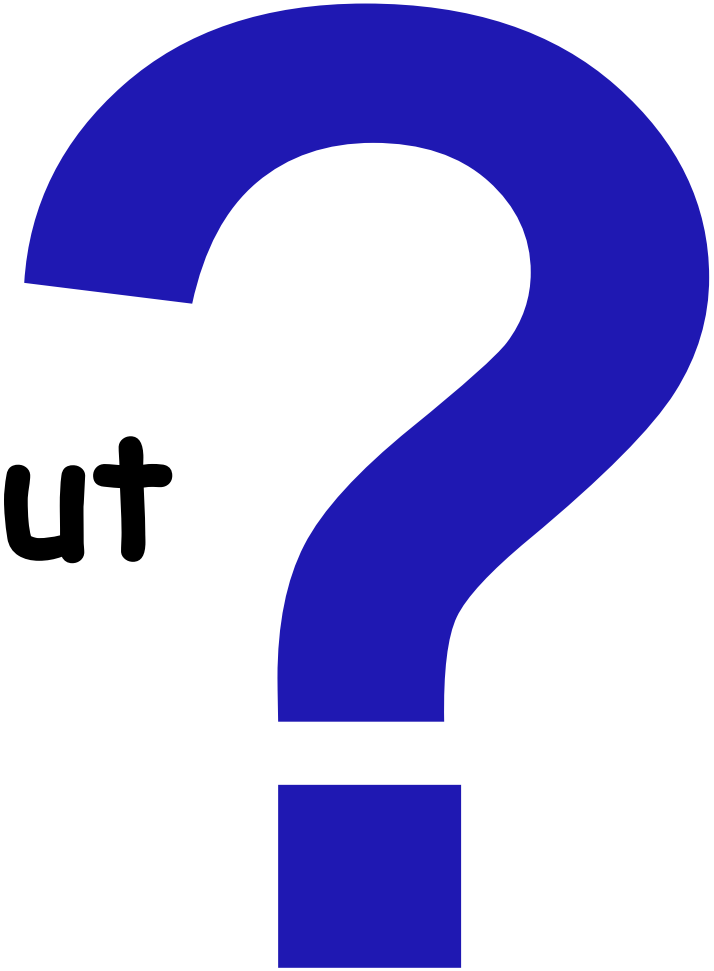
Are you thinking about creating something



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