Diduino2 – Best for experimenting

The **Diduino2** is an Arduino Uno/Duemillanove compatible card which is not fully compatible: that's its interest:

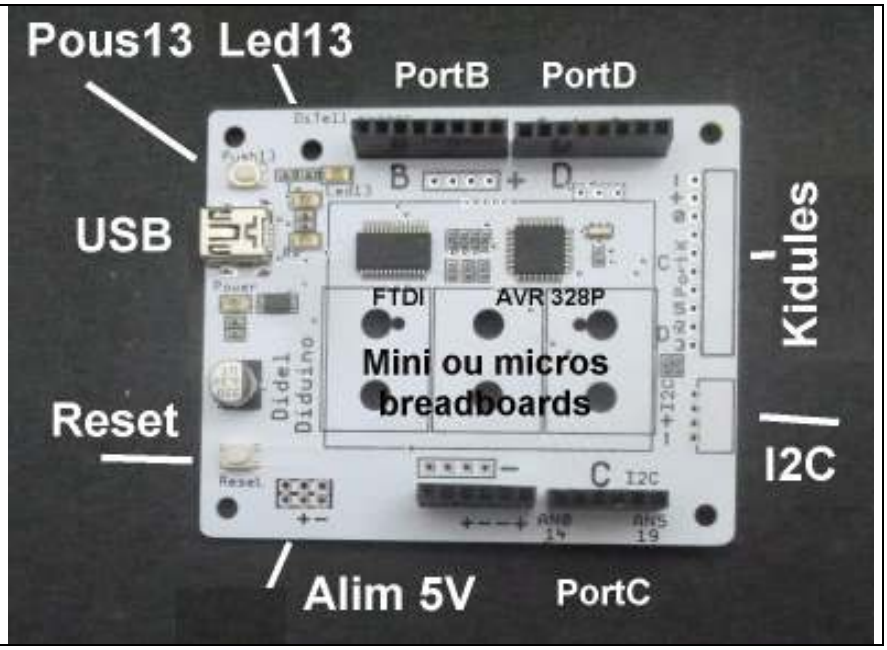
- More power pins (Gnd, V+)

- Push-button on board

- I2C connector on board

- 8-bit Kidule connector

Same cost as less complete cards, compare!

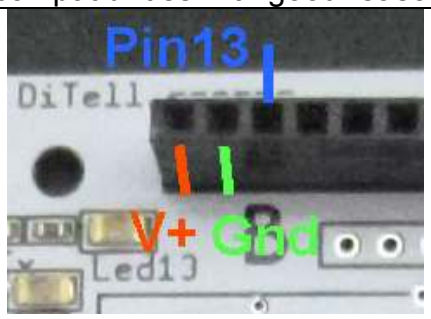


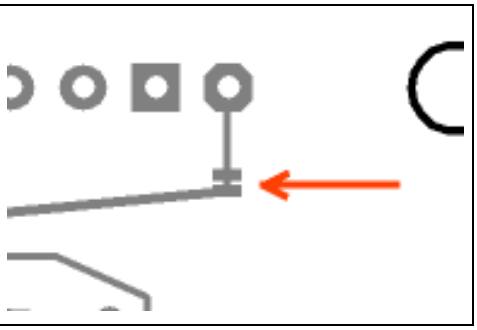
If you are used to experiment with components, you know Arduino terribly misses power and ground pins. It also misses a push-button as found e.g on the MSP430 boards.

1) Diduino2 advantages — Uno incompatibilities

We have accepted 2 weak incompatibilities with good reasons:

Vref pin is connected to the +5V. But you can cut a strap with a scalpel if you need to play with that pin, and come back with a drop of solder. A power pin on that side is really usefull (see later).

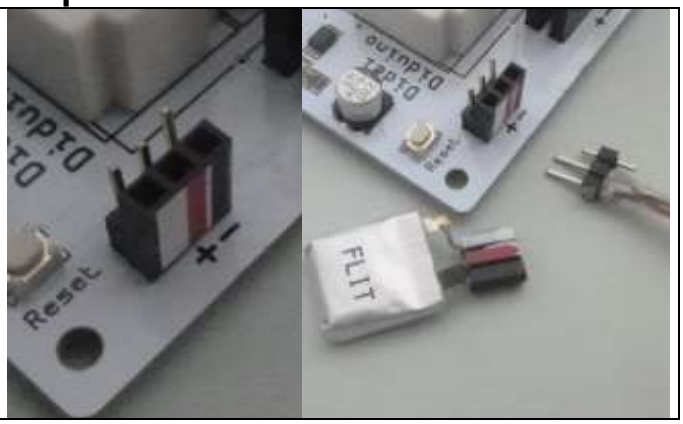




Vin pin receives +5V on Diduino. Arduino Uno Vin is connected to a power jack, 9V or more. Having a high voltage on that pin is dangerous.
The use of 9V polluting and expensive batteries (2000 USD per kWh), or wall transformers is no-sense today.
Mobile telephone power packs of all sizes that connect to the USB are available.

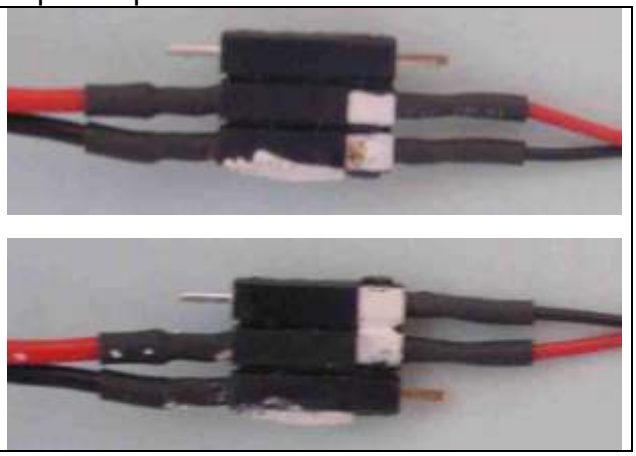
2) Diduino2 advantages — More power pins

Battery packs of AA cells are not the solution we encourage, but having a 2.54 female connector is nice. You also surely have kept Lipos for some dead toy. They provide 3 to 3.7V and are light, easy to recharge with the charger of the toy or some cheap charger. Diduino has place for 2 power connectors. We recommend to put one male plug for getting the power from a battery, and one female for giving the power to a logic pen or an external interface to be powered at V+



An additional recommended trick is to have the female connector on the outside, doing some protection to avoid occasional shorts between male power pins.

A 3-pin connector instead of 2 pins will give you a good protection using an easy 2.54mm strips. There are plenty of connectors with a key, but the problem is they are all incompatible. We use female 3-pin connectors on power supplies cables (Gnd V+ nothing) and 3-pins male connectors on boards.
You see on the pictures the trick: we assume you are smart enough to align the connectors, but you may be distracted and do it the wrong way – no danger !



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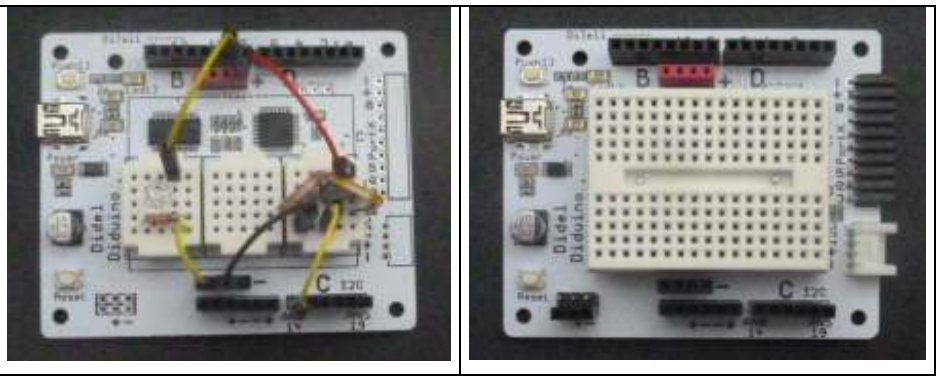
3) Diduino2 advantages — mini breadboard and power strips

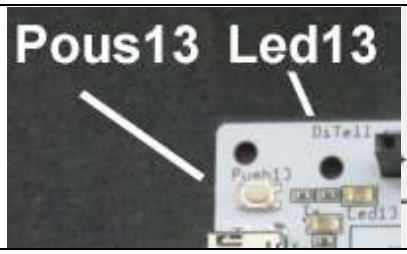
Check an IR sensor, a temperature sensor.
A very small breadboard is enough. We sport three 5x5 pins. Insert them on the board according to the project. Add the V+ and Gnd connectors, they are part of the kit, easy to solder.

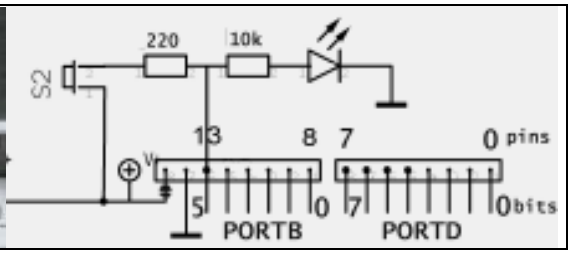


Need more contacts? add a 170 pin breadboard. It fits on the board. Diduino-Edu users know it is a good size for many experiments.

4) Diduino2 advantages — Push button and debugging

Pin 13 and its led is the first pin beginners discover, and it is a pin that should stay free in any application to help debugging.

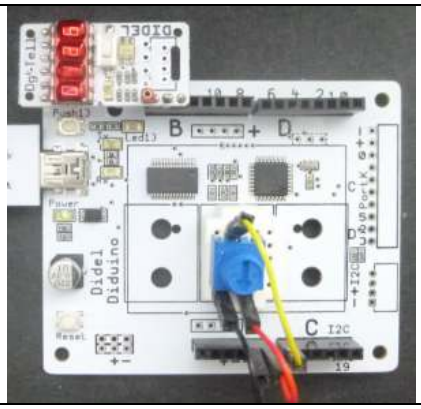




A push-button is also essentiial on a board, to understand how to handle it, and to be able to interact with a program. Such a button is missing on Arduino compatible boards, but we have added it on the Diduino2, wired on pin 13.

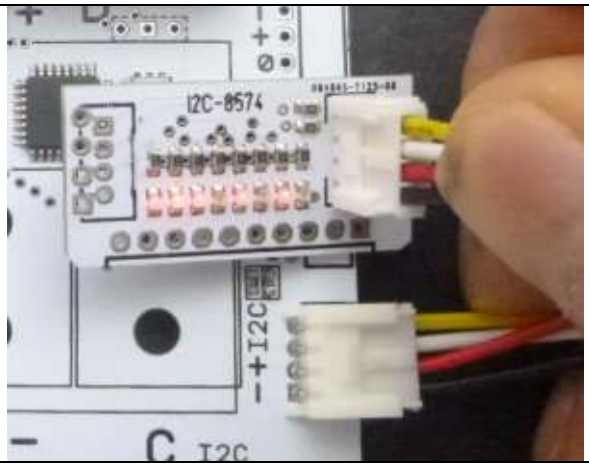
You know how to blink. To read the push button, define pin13 as input. A digitalRead will give a 1 if button is pressed. In output mode, if you depress the button, nothing should happen due to the 220 Ohm resistor; the controller will give more current to keep a zero state.
With this button you can do many tricks, e.g. select a task or a program by depressing several times. see www.didel.com/diduino/PushButton.pdf

Pin 13 has another major reason to be preserved for debugging: we use it to send a 16-bit data for the DiTell four digits display. It replaces the serial terminal when you are off-line, and it uses much less process time and memory than the terminal. With its 3-pin connector it is placed on the Diduino2 board in a snap and leave the access to the other pins free. DiTell can convert locally hex to decimal ! See the doc on www.didel.com/diduino/Ditell.pdf



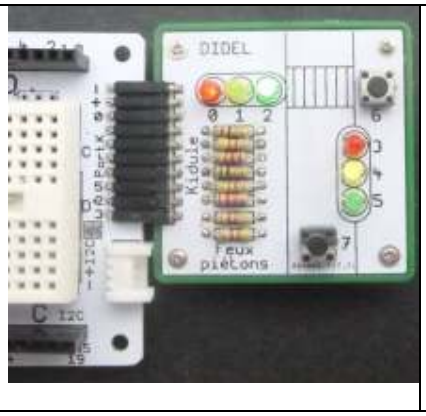
5) Diduino2 advantages — I2C grove connector

There are many grove I2C modules available with varied functionnallity. Control signals are on pin A4 A5. The Diduino2 has a grove connector and the pull-up resistors to make experiments with I2C easier.



6) Diduino2 advantages — Kidule/Microdule connector

The Microdule concept is to have an easy access to the 8-bit ports of microcontrollers The AVR328 on Diduinos has no 8-bit port complete. A concatenation of PORTC 0..5 and PORTD 2..3 is done.
Solder this connector and you will be frequently pleased to get a well-placed Gnd and V+ signal, plus easy second connection option to 8 pins. Breadbord tests are more easy to buid, accessible on both side and easy to connect..



For education, the Kidules have proven their efficiency. Each Kidule (dice, traffic light, display, motors, clock, ..) allows to teach programming with different applications in hand. A kid can connect safely a Kidule, not an Arduino shield.

Learning C under Arduino IDE

Arduino functions simplify the learning of programming. But programs are heavy and not portable. Arduino is like a bicycle with caster wheels. Remove the casters, that is do not use the Arduino function and you get a tool that go fast and far away.
Didel has a lot of documentation you can find under google typing "didel function" "didel sensor name" "didel application". Experiment! Enjoy!

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