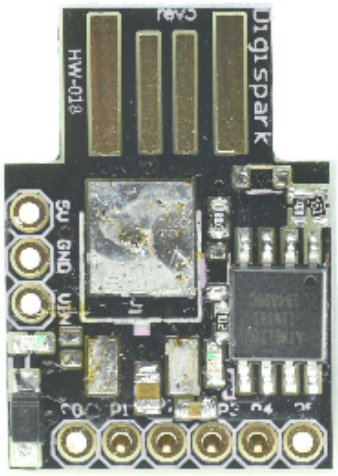
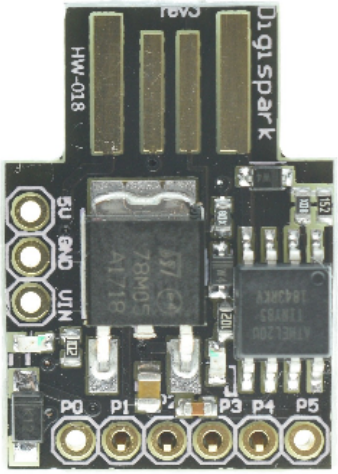
Low power projects digispark ATtiny85 modification

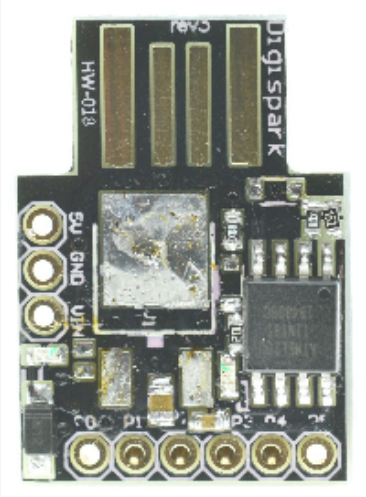
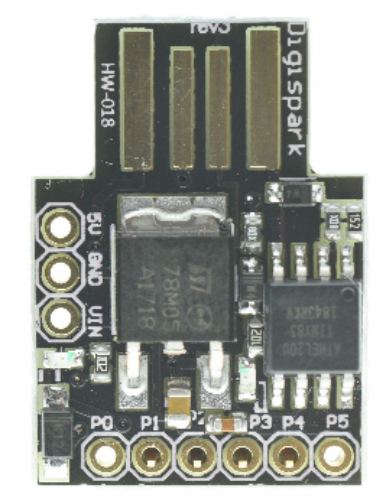
Hardware Modification





Stage	idel Power	Feature lost by modification
Initial	0.120W	-
w/o 78M05	0.096W	Option to use 6v-12v external power
w/o Power LED	0.081W	Power indicator
w/o diods	0.072W	Extra protection from mess with -/+
software sleep	0.002W	Simple code

Software optimization

		
Code with delay()	0.072W	0.120W
Code with cpu_sleep()	0.002W	0.041W

Blinking Led

```
void setup()
{
  pinMode(1, OUTPUT);
}
void loop()
{
  digitalWrite(1, HIGH);
  delay(1000);
  digitalWrite(1, LOW);
  delay(1000);
}
```

Low Power Blinking LED Example

```
#include <avr/wdt.h>
#include <avr/sleep.h>
#include <avr/interrupt.h>

#define adc_disable() (ADCSRA &= ~(1<<ADEN)) // disable ADC (before power-off)
#define adc_enable()  (ADCSRA |=  (1<<ADEN)) // re-enable ADC

void setup()
{
  // Power Saving setup
  for (byte i = 0; i < 6; i++) {
    pinMode(i, INPUT);      // Set all ports as INPUT to save energy
    digitalWrite (i, LOW);  //
  }
  adc_disable();          // Disable Analog-to-Digital Converter

  wdt_reset();            // Watchdog reset
  wdt_enable(WDTO_1S);    // Watchdog enable Options: 15MS, 30MS, 60MS, 120MS, 250MS, 500MS, 1S, 2S, 4S, 8S
  WDTCR |= _BV(WDIE);     // Interrupts watchdog enable
  sei();                  // enable interrupts
  set_sleep_mode(SLEEP_MODE_PWR_DOWN); // Sleep Mode: max
}

void loop()
{
  pinMode(1, OUTPUT);
  digitalWrite(1, HIGH);

  sleep_enable();
  sleep_cpu();

  //Set the LED pins to LOW. This turns it off
  pinMode(1, OUTPUT);
  digitalWrite(1, LOW);

  sleep_enable();
  sleep_cpu();
}

ISR (WDT_vect) {
  WDTCR |= _BV(WDIE);
}
```

Source: https://alexgyver.ru/pump-sleep/

Source: http://www.gammon.com.au/power