INTRODUCTION

LOKII-CE boards are development boards for Maker/Student to build up their own electronics prototype/product.

Please read all instructions and warnings on this sheet prior to using. Keep this instruction sheet as it contains important information for future reference.

PRODUCT SPECIFICATIONS

SMART_SHIELD	ARM9 Multimedia Processor ~380 MB flash storage 320x240 LCD display 720P Camera module 802.11 a/b/g 2.4GHz WIFI module Bleutooth 5.0 module USB port
SMART_POWER	DC input: 6-9V @5A power source You can plug in a 6V - 9V DC voltage to provide up to 40W power to drive external components.
SMART_IO_V2	12 Digital Input/Output 4 Analog Input
SMART_ARDUINO	Arduino /Circuitpython compatiable board with BLE connectivity
SMART_RC	A SMART_DEVICE board which can drive 4 RC servo motor

Remark: Depend on your board order configuration, SMART_IO_V2 or SMART_ARDUINIO may be bundled in the box.

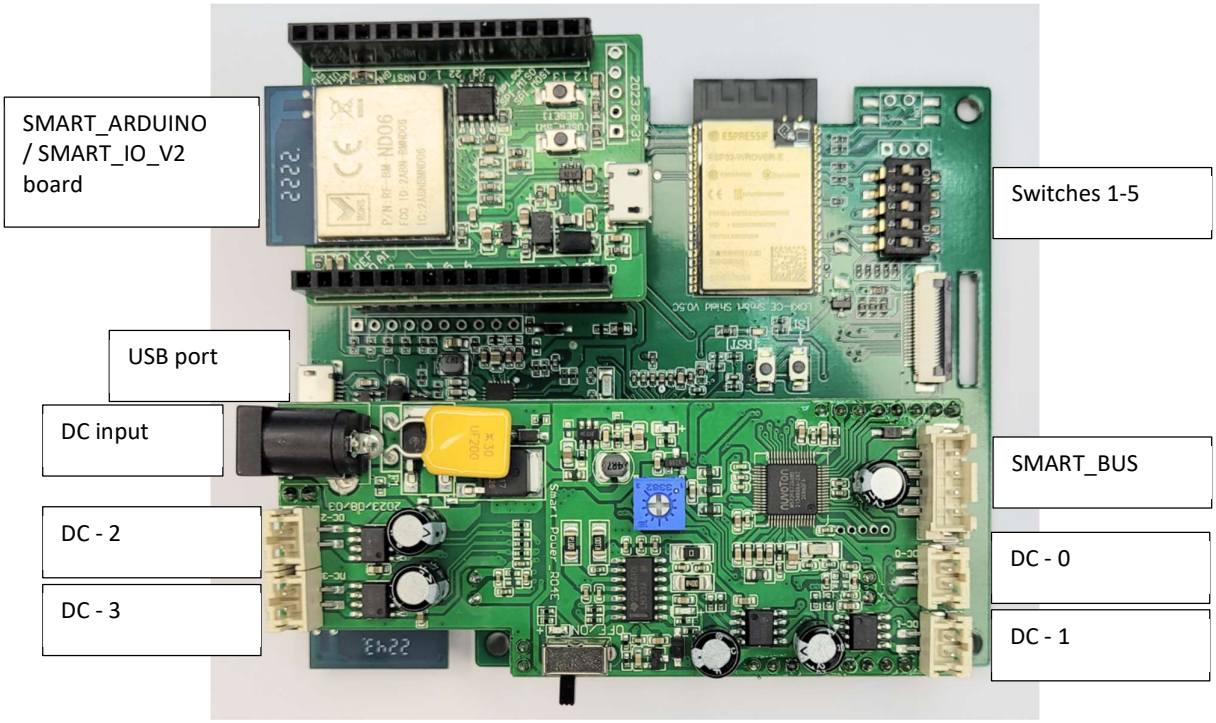
SUPPORT

For more information, please visit www.btobsteam.com to get the latest support or send us email: btobsteam@gmail.com

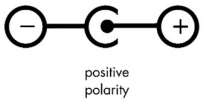
BOARD CONFIGURATION

SMART_SHIELD, SMART_IO. SMART_POWER can be stacked together to provide complete function for Blockly programming. If user want to program in Arduino/Circuitpython, user can purchase a separate SMART_ARDUINO to replace the SMART_IO_V2.

LOKII-CE Boards



DC input polarity:

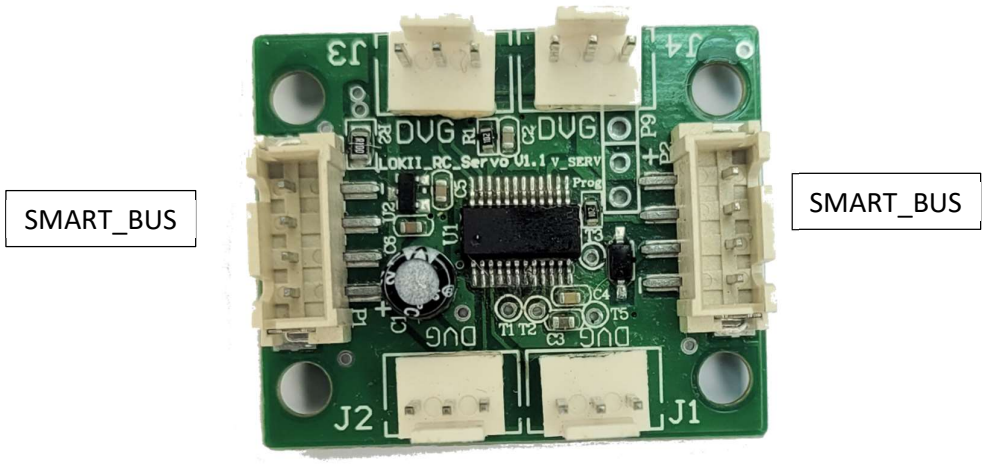


Switches 1 -5 controls LOKII-CE board boot up behaviors:

Switch 1 ON	LOKII-CE board enter USB mass storage mode when connect with a PC through USB cable. This allow user to change the wifi setting or copy file from mass storage.
Switch 2 ON	LOKII-CE enter SMART_ARDUINO board control mode. (This mode works if SMART_ARDUINIO is inserted before power up)
Switch 3 ON	Run Blockly script 1 once
Switch 4 ON	Run Blockly script 2 once
Switch 5 ON	Run Blockly script 3 once

SMART_POWER board can control up to 4 DC motors. The default SMART_IDs for these DC port are 0,1,2,3 and cannot be changed in the program.
The initial SMART_ID (id =8) can be configured in program.

SMART-RC (SMART_DEVICE board)



RC_Servo board can control up to 4 RC servo. The default SMART_IDs for these RC port are 8,9,10,11. The initial SMART_ID (id =8) can be configured in program.

SMART_IO_V2 **SMART_ARDUINO**

SMART_IO_V2 provides 12 digital I/O + 4 Analog input ports for external sensors or output in 3.3 V

SMART_ARDUINO

First time setup

LOKII-CE boards support two WIFI configuration method:

- Soft-AP mode
- Station mode

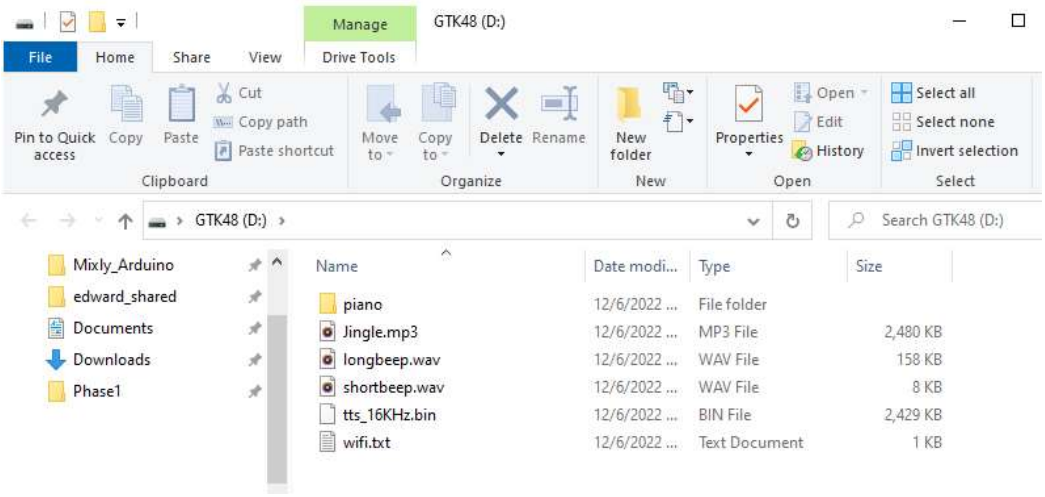
Soft-AP mode

When there is no “wifi.txt” file configured inside SMART_SHIELD USB mass storage and power up the board, LOKII_CE boards will enter Soft-AP mode. In this mode, LOKII-CE boards will emulate as a Soft-AP router (No internet connection) and user can connect this WIFI access point by joining the network name called: “LOKII_XXXXXX”. After joining the network, user can use a computer device (Window/Mac/iPhone/Android) to enter “192.168.4.1” in an internet browser and enter LOKII-CE Graphical IDE.

Station mode

User can configure SMART_SHILED to join the same 2.4GHz WIFI router. (Not 5GHz WIFI network) In this case, user can keep the internet connection when using a computer to enter LOKII-CE Graphical IDE.

To configure Station mode, user press and hold the “USB mode button” of SMART_SHIELD ,and then connect the USB cable to a Window computer, SMART_SHIELD will emulate a USB mass storage device.



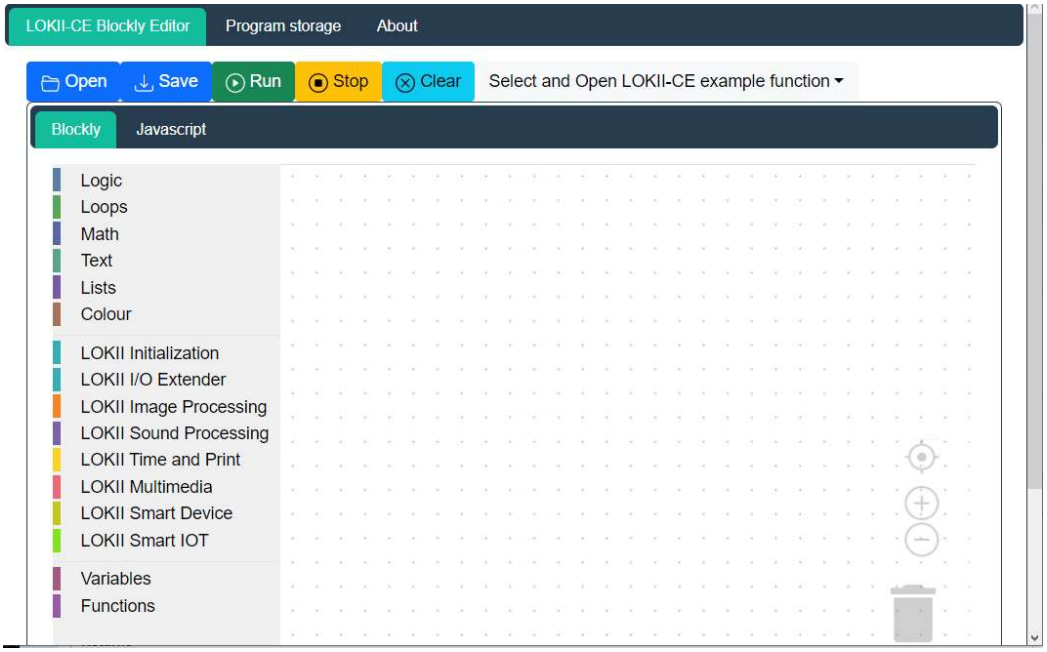
Under the USB mass storage drive, create a “wifi.txt” file by notepad and enter the WIFI SSID and password of the network router with following format (Make sure these keywords are in lower case) :

ssid=XXXXXXX
password=XXXXXXX

After reset the boards power (Unplug and plug in the USB power cable), LOKII-CE should show the connected IP address.

LOKII-CE Graphical IDE

When LOKII-CE boards (without SMART_ARDUINIO) power up and display the IP address, user can enter the IP address in the internet browser to start the Blockly programming.



LOKII AI functions execution note

When programming LOKII-CE boards with either Blockly / Arduino / Circuitpython, we need to take care of the LOKII-CE processing power.

1. Below function can be executed one by one , but not in parallel

* Face detection
* Color Tracking
* QR Code Detection
* Speech Recognition
* Text-To-Speech
* Video Recording
* Video Playback
* (Audio Recording/playback) + (Photo Taking + display)

2. All other functions, such as motors, gamepads, digital or analog I/O have no execution limitations