Report of creation of BitCP

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Battery

18650 Li-Ion Battery [1]	Max. Capacity: 2600mAh
Raspberry Pi Pico W [2]	Avg. 1hr Require: 250mA

The 18650 Li-Ion battery has a 2600mAh energy capacity Raspberry Pi Pico w requires energy of 250mA per hour. We could state that the maximum battery usage of the Raspberry Pi Pico W, would be 250mAh. We could calculate the minimum time available by “Battery Capacity / Component Energy Consumption = Maximum Usage Time Available”

Calculation: 2600mAh / 250mA = 10.4h

According to our calculations, we could tell that the maximum usage time available of BitCP, would be 10.4 hours.

Display/Controlling

We used the “Pico ST7789 240p 45K-RGB Hat LCD Module [3]” for GUI on display. The specks are the following:

Operating Voltage	2.6 ~ 5.5V
Communication Interface	4-wire SPI
Display Panel	IPS
Driver	ST7789
Resolution	240x240 pixels
Display Size	23.40 x 23.40 mm (1.3 inch)
Pixel Size	0.0975 × 0.0975 mm

Dimensions	52.00 x 26.50 mm

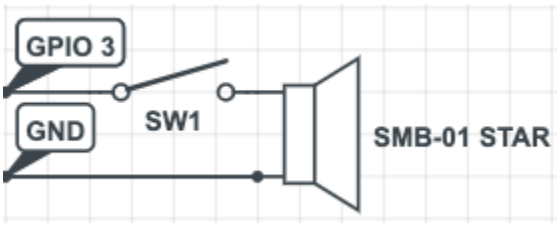
This display module seems to have an extension of 4 buttons, and 1 joystick available for controlling.

Coding/GUI

All of the programming and the brain would be in the Raspberry Pi Pico W component and programmed with "MicroPython" which matches the GPIO pins, and the level and amount of modules included. The code would be hosted on GitHub with a GNU 3.0 license. BitCP would allow any multiplication, and arrangement for educational purposes, without **any** purposes of economy and profit. The license and code always attribute to "Kunihito Takada".

https://github.com/Kunihito-Takada/BitCP

Circuit



https://www.circuitlab.com/

The circuit diagram represents how the buzzer would work with the required voltage and the switch control.

By closing the SW1 switch, the SMB-01 STAR mechanical buzzer would be in action, resulting in other people noticing the sound from BitCP. "GPIO 3" and "GND" pins mean the GPIO&GND on the Raspberry Pi Pico W.

Case

The case model would be created in a 3d printer with the following specifications. PLA would be used for the filament materials. The software blender would be used for modeling:

Ender-3 S1[4]

Printing method	FDM (Fused Deposition Modeling)
Print size	220*220*270mm
Body size	487*453*622mm

Carton size	540*510*260mm
Body weight	9.1kg
Gross weight with carton	11.2kg
Accuracy	±0.1mm
Attached nozzle diameter	0.4mm
Power supply	115/230V 50/60Hz 4.5/2.5A 24v 350w
Auxiliary leveling	True (Equipped with CR-Touch as standard)
Compatible slicing software	Creality Slicer/Cura/Repetier-Host/Simplify3D
Data transfer method	SD card/Type-C USB cable
Slicer compatible file formats	STL/OBJ/AMF
Heat bed temperature	100°C
Nozzle temperature	260°C
Print speed	Maximum 150mm/s (Recommended: 60-100mm/s)
Lamination pitch	0.1 - 0.4mm
Screen size	Knob type 4.3-inch color screen
Print platform	PC magnet plate
Compatible filament	1.75mm PLA, TPU, PETG, ASA
Extruder	Direct drive "Sprite" adoption
Filament sensor	True
Power failure resume function	True

Main board	32-bit silent main board
Supported language	Japanese/Chinese/English

The .obj modeling file would be on GitHub:
https://github.com/Kunihito-Takada/BitCP/hardware/model.obj

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