Part Number:  XK51

## **Description:** Arduino Zero Compatible Kit

Arduino users can build devices in minutes with our comprehensive eco-system of 60+ modular sensors, output, control and communication, and auxiliary xChips.

The XK51 Arduino Compatible Kit includes sensors for hand gestures and proximity, magnetometer and accelerometer to measure motion in 3D including vibration, an 8 channel servo driver (enough to control an autonomous car), and mini OLED display for device output. It also comes with a coin battery power pack that can power the device for months.

The core is the same as the Arduino Zero. Finally, we provide the right number of xBus and xPDI connectors for building and programming your xChips.

All of this is with no change to the way you code, no need to learn electronics, solder or breadboard. xChips are robust, and reusable to prototype new devices.We provide device libraries online to support implementing your ideas, as well as projects and code samples to spur your imagination.

**Kit components (one each)**

CC03 - Cortex M0+ Core (ATSAMD21G18)
IP02 - Advanced USB Programming Interface (FT232R)
OC05 - Servo Driver (PCA9685 & BU33SD5)
OD01 - OLED Display 128x64 (SSD1306)
PB02 - Coin Battery Power Pack
SI02 - IMU 6DoF (MAG3110 & MMA8653fc)
SL06 - Gesture (APDS-9960)
XC10 - 10-Pack xBus Connectors
XS02 - 2-Pack xPDI Connectors

**How it works**

XinaBox's CC03 Cortex M0+ xChip Core Module (SAMD21G) brings you exactly the same Micro Controller Unit (MCU) as the Arduino Zero. Together the CC03 and the IP02 Advanced USB Programming offer the native programming functionality of the Arduino Zero. Once finished programming, you can continue to use the IP02 for USB power (and Serial output on your computer), or unplug it, and use the coin cell battery, PB02, for power.
The servo driver also has a connection for independent device power. The OD01, our 128x64 pixel OLED display, allows an alternate display to Serial - very useful for monitoring during device operation.

Please see our guides for getting started with Arduino IDE and XinaBox.

Note for Arduino Uno users: look at the CC01 - ATmega328PCore CPU for the same Micro Controller Unit (MCU) as the Arduino Uno - ATmega328P (running 16MHz), and pair it with the IP01 programmer/USB Powersupply - or keep using the IP02.

**With these xChips you can make:**

- a tracker showing how smooth your driving is! Use the mini OLED to display how much you accelerate, brake and take sharp turns!
- a tracker showing how much G-force and shocks you can take on your bike or skateboard
- an M&Ms sorter, using the gesture sensor to identify M&M color, and the servo to steer M&Ms into colour coded piles
- a servo controlled vehicle that uses the gesture sensor to:
    - avoid obstacles
    - follow lines based on colour (e.g. driving zig-zag to find the right lines)
- a snakes game on the OLED Display, controlled by the gesture sensor

- use the servo driver to control a scary monster that starts when something moves close to it
- record on the display every time somebody opens your secret place

**Projects to get you started**

- Easy Weather Station Using MQTT, XinaBox And Kibana
- GPS OLED Position Display Using XinaBox
- OLED Name Tag using XinaBox and Arduino
- Sound a Piezo Buzzer with Blynk and XinaBox
- Easy Peasy Temperature Monitor
- Serial Humidity Monitor
- Blynk Weather Station
- Email Weather Reminder Using ☒CHIPS And ESP8266
- Serial Barometric Pressure
- Atmospheric Pressure Measurement Using XinaBox xChips
- Temperature Measurement Using ☒XinaBox And A Thermistor
- Date, Time & Temperature Display using ☒XinaBox
- Serial QNE Altitude
- UV Index Alert Using XinaBox ☒CHIPS and Arduino
- Relative Humidity Reader
- Servo Control with Capacitive Touch Using XinaBox