



*Only DIY could quench  
your thirst of getting knowledge!*

We learn: 10% of what we READ, 20% of what we HEAR, 30% of what we SEE, 50% of what we SEE and HEAR, 70% of what we DISCUSS, 80% of what we EXPERIENCE, 95% of what we TEACH others, and **99% of what we MAKE by ourselves.**

## ARM

The essence for making your own autopilot electro mobile, smart house appliance, robot, droid, drone...

## MCU

Easy for children to get a start of electronics in AI from scratch.

# CAMELLIA CONTROLLER



*Camellia Café*  
LEARNING MODEL DIY Self-fulfillment

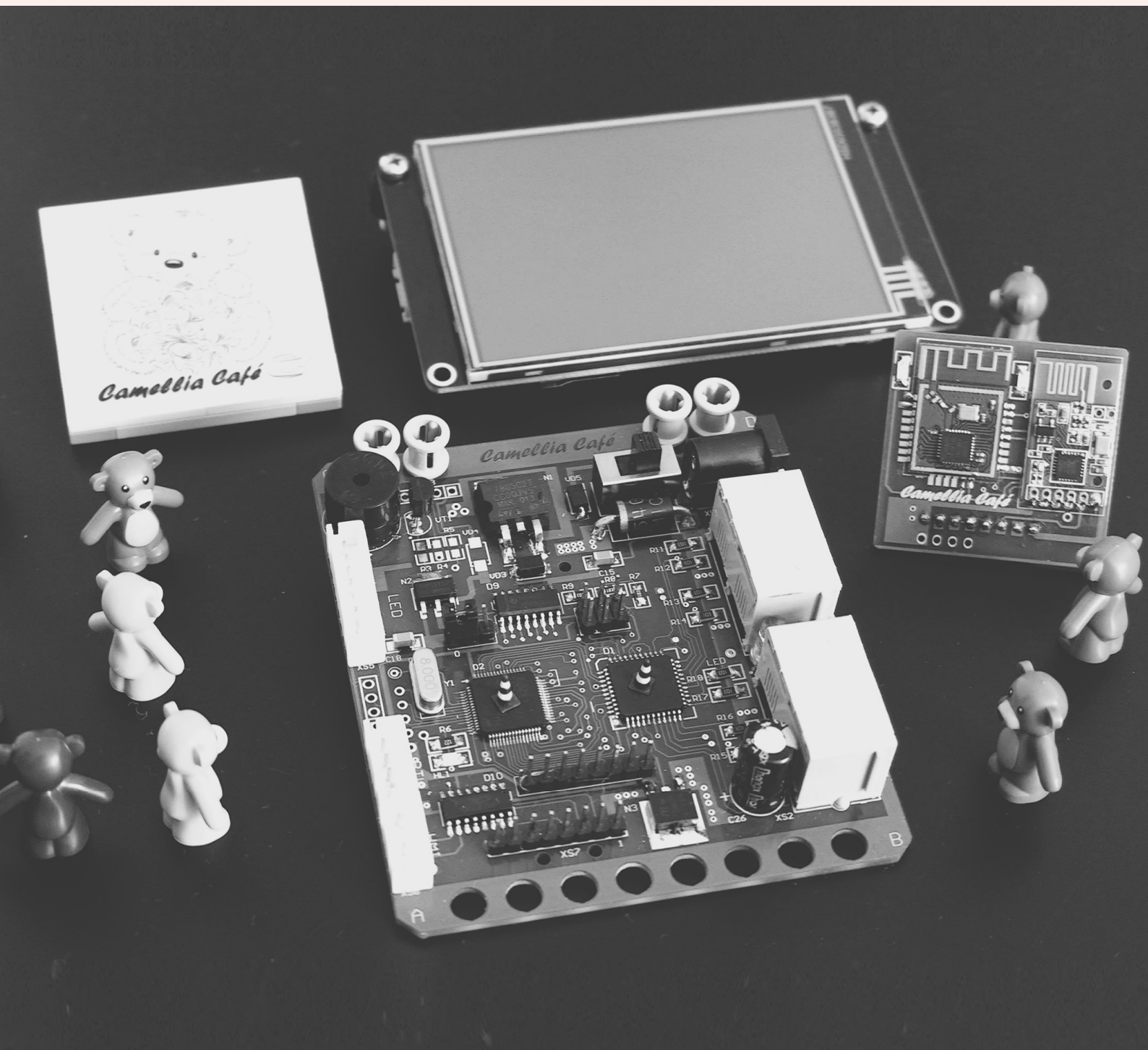
[www.camellia.xin](http://www.camellia.xin)

## Unveil Mysteries

We help you get the cutting-edge technology and help you design your own contraptions.



# Core



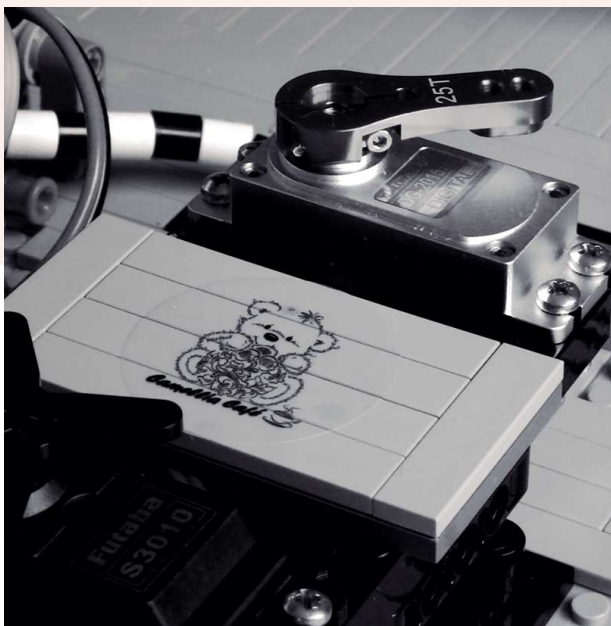
*The wide, fast-moving system of technology bends the culture subtly, but steadily.*

*We are focusing on the future of industries. Parenting is the most important job that a person can perform, and our children will grow up to inherit a world that looks much different from our own...*



“ No matter an autopilot electro mobile which will be our third room besides our home and office, or an ornithopter and a drone, no matter an industrial robot arm and a smart housework appliance, or a human look-alike droid such as R2-D2, BB 8 in "Star Wars" and a Transformer, it is the CONTROLLER that performs all their functions. The controller is their CORE. It is both hardware and software with algorithms, just like our human's brain with wisdom and soul. ”



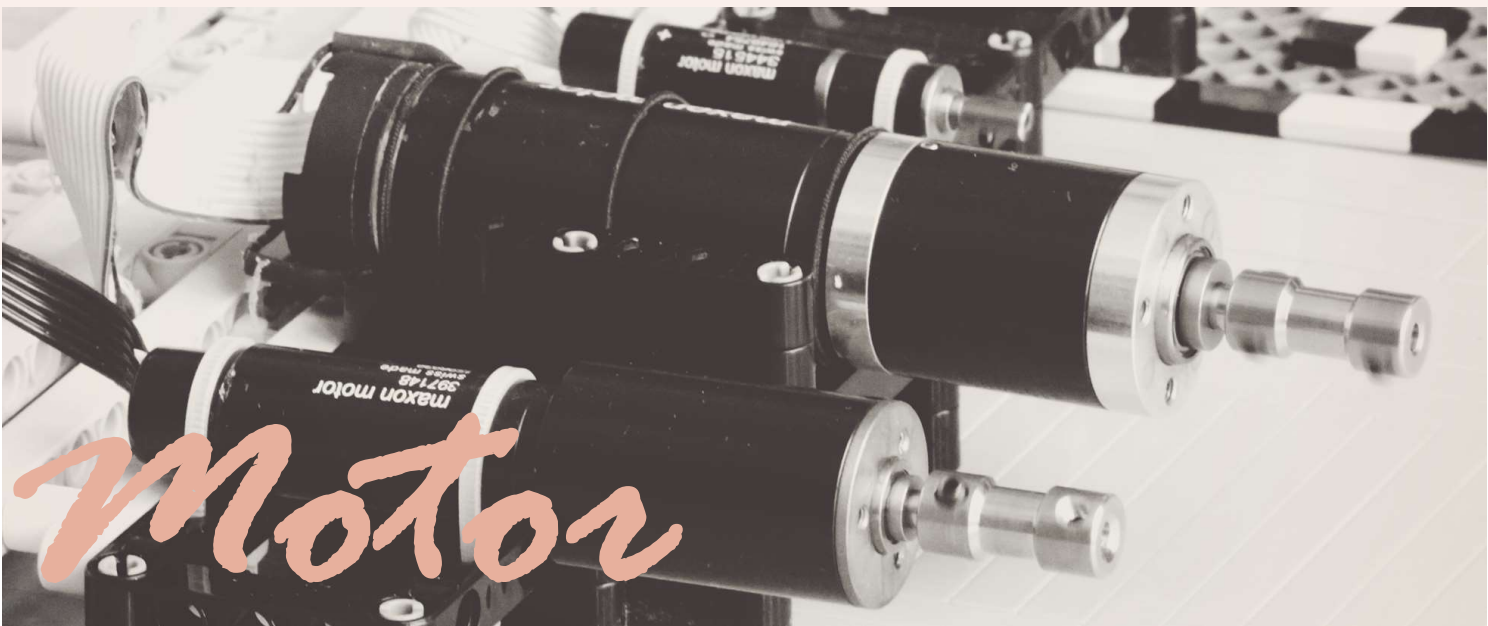
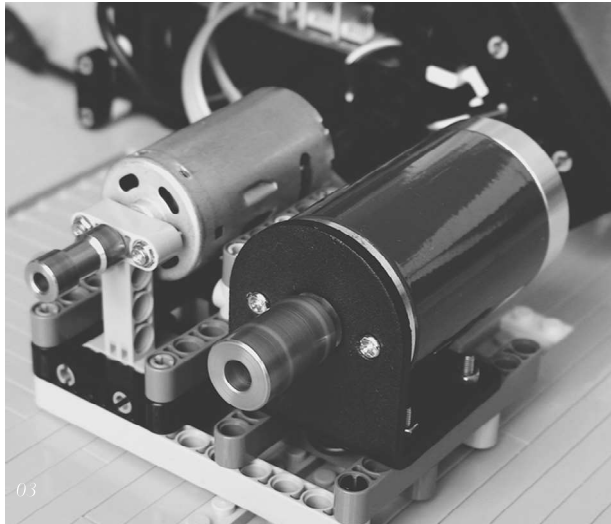


The Motor drives electro mobile, robot, and droid or their parts. Motor Control is the key function of Camellia Controller.

### LEGO Motor

- Power Functions Motor: Speed Adjustment, Clockwise/Counter-Clockwise Set, and Running Time Set. (Also, Feedback Control of Position for Power Functions Servo Motor)
- Boost Motor: Speed Adjustment, Clockwise/Counter-Clockwise Set, and Running Time Set. (Also, Feedback Control of Speed and Position for Boost Interactive Motor)
- MINDSTORMS EV3 Servo Motor: Feedback Control of Position, Speed, and Clockwise/Counter-Clockwise, and Running Time Set.

\* Camellia Controller is easy physical connected with LEGO bricks with LEGO bolt.



### DC Motor

- Speed Adjustment with Soft Start up
- Clockwise/Counter-Clockwise Set
- Running Time Set
- Motor Power: 6 - 24V

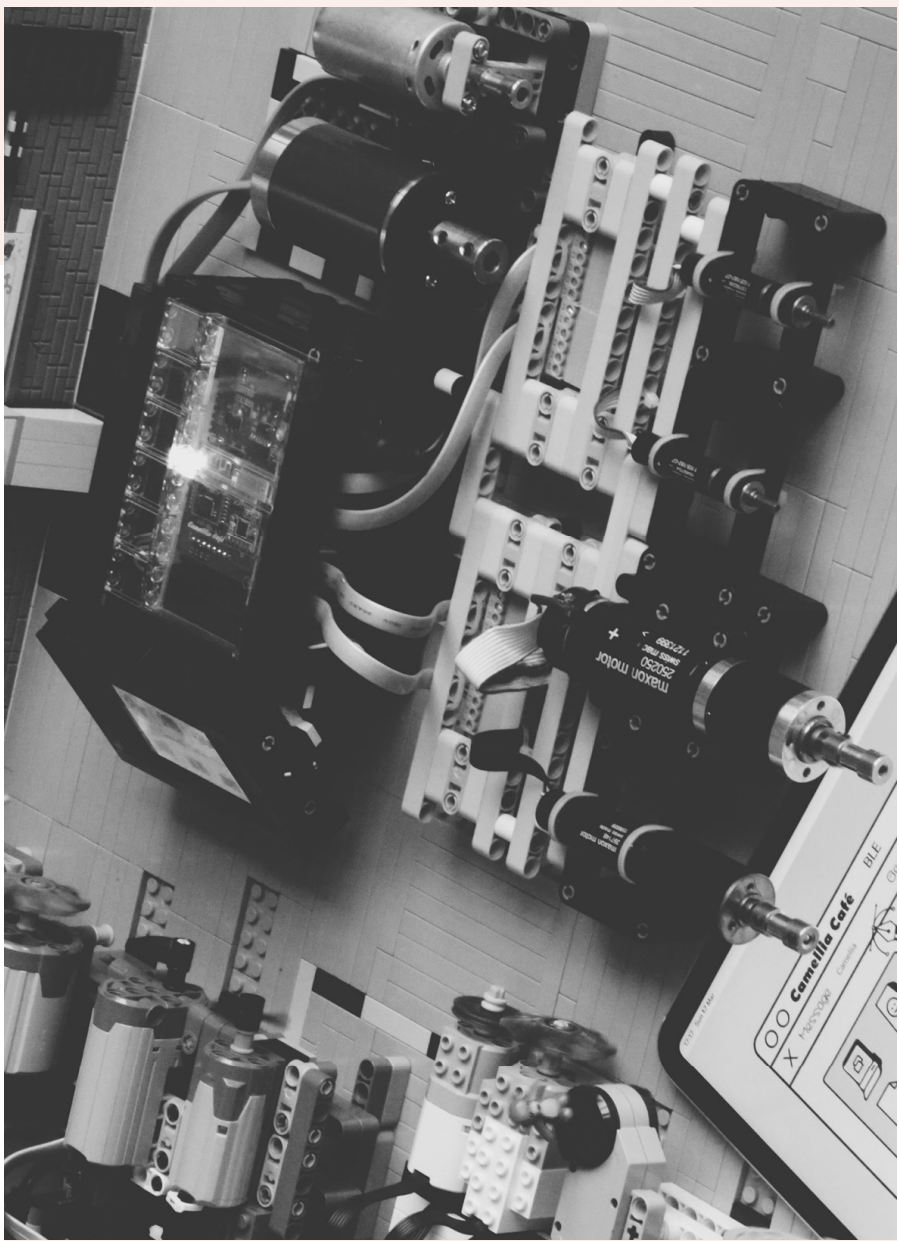
### Servo Motor

- Feedback Control of Position
- Feedback Control of Speed
- Feedback Control of Clockwise/Counter-Clockwise
- Running Time Set
- Soft Start up
- Break
- P.I.D. Parameters Set for varied responses or none overshoot
- System Parameters Set for assemblies of various motors, gearboxes, and encoders
- PWM: 5 - 95%
- Motor Power: 6 - 24V

### Digital & Analogue Steering Motor

- Feedback Control of Position
- PWM: 5 - 95%
- Motor Power: 6 - 24V

**!** You **SHALL** pay attention to all **SAFETY** issues when designing and manipulating your models, such as using power source correctly, avoiding of short-cut and locked-rotor, providing covers for blades, only running your models in a safe environment and so on.



### Swarm Intelligence Sophisticated

“ Camellia ARM controls any motors at the same time or in sequence. Each motor or each controller communicates with others. At the same time, all are in the autocracy of a PC/Phone/Pad. This will help four wheels of a car run respectively, two robot arms work together, three droids play a ballet, and dozens of drones display a 3D firework in the sky...”



## Human Machine Interface

# How to talk with Robots

**L**anguage of Robot or Computer is different from us. It is 0 and 1 which is called Binary System. Let us see how a robot does calculations of adding, subtracting, multiplying and dividing.

Besides, "And", "Or", "Not" and "Or" are logic operations, they are Booleans. "If-Else", "Switch-on", "While", and "For" are basic coding.

Third, it is ASCII code that translates robot or computer language to our human's words.

All the above are the base for electronics. Moreover, electronics is one of the critical technologies for the controller.

Camellia MCU with LED also helps you get these vividly.

**“** On the one hand, the touch Screen enables you to control motors or set parameters when you are near robots; on the other side, messages or status from robots are displayed on the screen.

Natural-language processing (NLP) is an area of computer science and artificial intelligence concerned with the interactions. It is coming soon. **”**





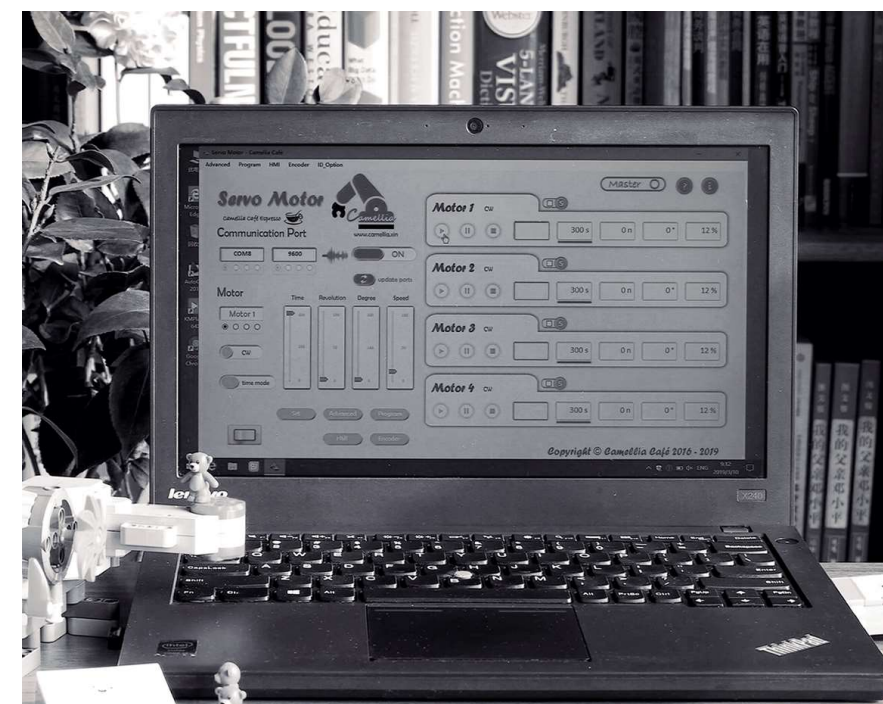
“Camellia Controller is not only hardware but also software. When talking about Intelligence in Artificial Intelligence, it is no more than a good algorithm. The algorithm is important. It is the know-how of Optimizing, Deep Learning, and Big Data Analysing ...”

## Control with any Device anywhere as your wish

*Cable connection, Bluetooth and Wireless, just select your available way to monitor controllers according to your PC or phone.*

General software applications are provided for different operating systems in various devices. They are standard applications with friendly User Interface and active User Experience, which are easy for controlling motors with all functions, parameter setting, and communicating information.

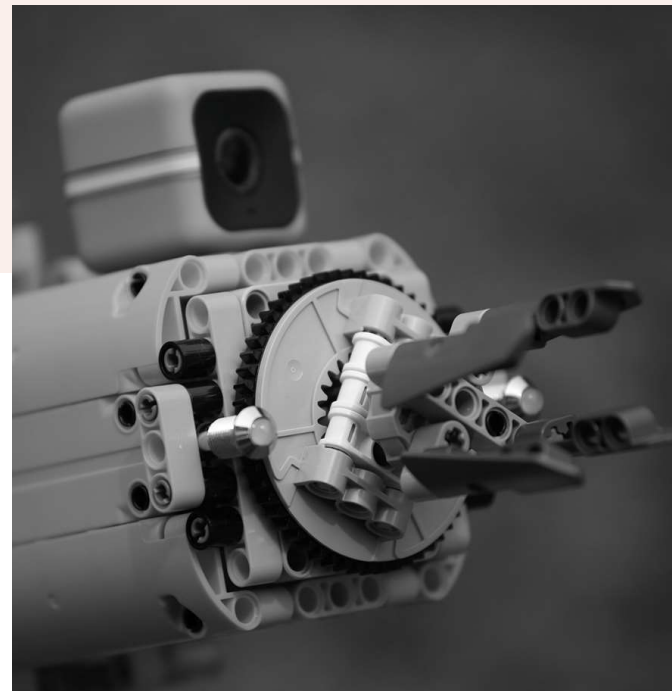
Software development by yourself is also able. This will help you make your own electro mobile, robots or drones with specialized functions. There are lots of basic function block for your coding.



*Windows, iOS/macOS, Android...*

*Computer, Laptop, Mobile Phone, Pad...*





at the same time, soft start up, sequence control, smart control and so on. If any particular function is needed, Camellia will provide algorithm and CPLD programming as you required. The PC, Phone and Pad are the monitors you are using, and they are called cascade controllers. Openly applications development with desired functions, friendly UI and active UX make you interact with your car, robot, and drone conveniently.

Touch screen, buttons, peripheral sockets, indicators, buzzer, and miscellaneous parts will bring you with more functions.

Hardware and Software are not separate parts. They are working together closely.

## Design & Learning

Design and Learning are twisted cables rather than parallel lines. Therefore, we always say **"We learn 99% of what we MAKE by ourselves."**

Camellia Controller is more than a contraption for controlling your devices. It is one of the best learning tools helping you get the necessary knowledge and the cutting-edge technology both for you and your children, and then help you design advanced devices by yourself from a technical model to a product.

*Software & Hardware:  
accuracy, precession,  
driving ability, robustness,  
safety, and fast response...  
all are important*

No matter a DIY model such as LEGO bricks, or a product in the market, every type of electro mobiles, robots and drones have their functions. Even being the same type, each individual has its own mechanic and electronic characteristic. Such as an electro car needs the high driving ability, a robot arm requires high accuracy and precession and avoids going to mechanical singularities, a drone needs the high driving ability and fast response...

Camellia Controller is the direct control device. Inside it, there are lots of function blocks to meet your design need. Just as multiple motors control



*Powerful in models of  
Electro Mobile, Robot, and Droid*