Internet of Things

[Everything could be connected. Everything shall be connected.] A system of interrelated smart devices, mechanical and digital machines, objects, animals or people that are provided with unique identifiers and the ability to transfer data over a network.

CAMELLIA IoT

If learning were coffee. 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 ...

Solution
[Camellia Controller]

From an advanced ARM to a primary MCU, also a compact Mini, Camellia Controller helps you to control your smart devices from every corner of the world.

perfect *from scratch*

Education
[Camellia Café]

To learn, to study, to design yourself Internet of Things: both software and hardware,

Technology

Wireless Local Area Network with Wi-Fi and Bluetooth, and Wide Area Network with MQTT via Internet or Cellular Data help you to connect. Perfect Servo Motor Control helps you to manipulate.

Learning

What is Machine to Machine, Human to Machine, and Peer to Peer?
Where is Natural Language Processing used?
Why is servo motor crucial in a smart device?

Do It by Yourselves

How to use Wi-Fi, Bluetooth and MQTT?
How to code in Android, iOS and iPadOS, and Windows?
How to develop an ARM or MCU integrated circuit?
And how to design a System?

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www.camellia.xin

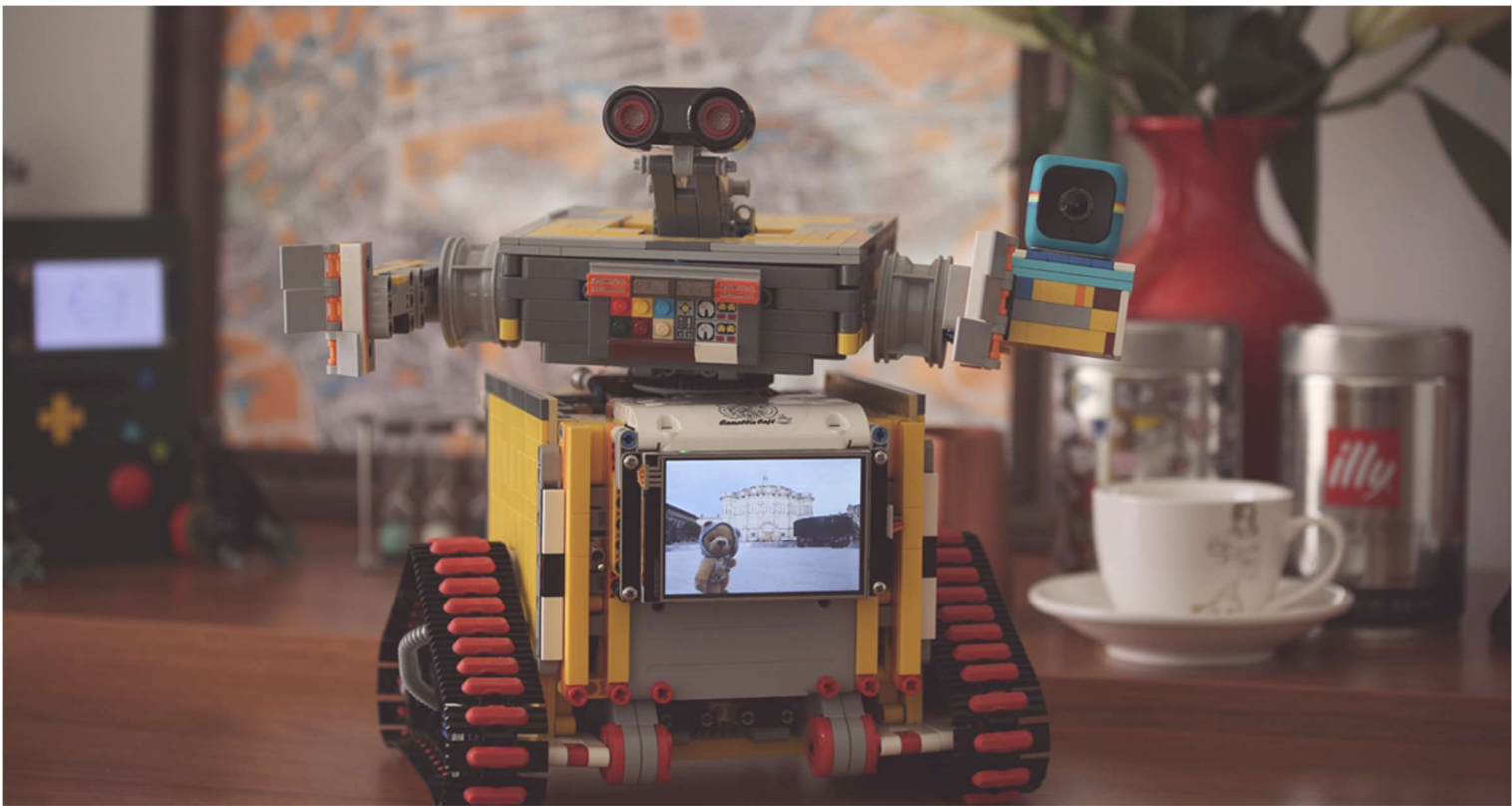This Droid Beemo could manipulate the Da Vinci's Ornithopter by itself.

- Scalability - Continue to function efficiently as more connected objects are added.

- Anonymity - Hide the identity of an M2M device when requested, subject to regulatory requirements.

- Communication Techniques - such as **Bluetooth, Wi-Fi in Wireless Area Network, and MQTT on Internet**.

- Delivery methods – Support **unicast, anycast, multicast and broadcast** communication modes.

- Indication – Display information with LCD screen.

- Action – Move via perfect **Servo Motor control**.

- Artificial Intelligence – **Flexible programmed** to analyze information.

[Machine to Machine]

[M 2 M]

Machine to machine, or M2M, is any technology that enables networked devices to exchange information and perform actions without the manual assistance of humans. Artificial intelligence and Machine Learning facilitate the communication between systems, allowing them to make their own autonomous choices.

The main components of a **Camellia M2M System** include sensors, a Bluetooth and Wi-Fi link or MQTT on Internet link, and autonomic computing and analyzing software programmed to help a network device to interpret data and to make decisions. These M2M applications translate the data, which can trigger preprogrammed and automated actions.

IP changed everything, and as more and more mobile capacity came online, more and more things could be connected via both the Internet and cellular networks, as well as growing Bluetooth and Wi-Fi platforms.
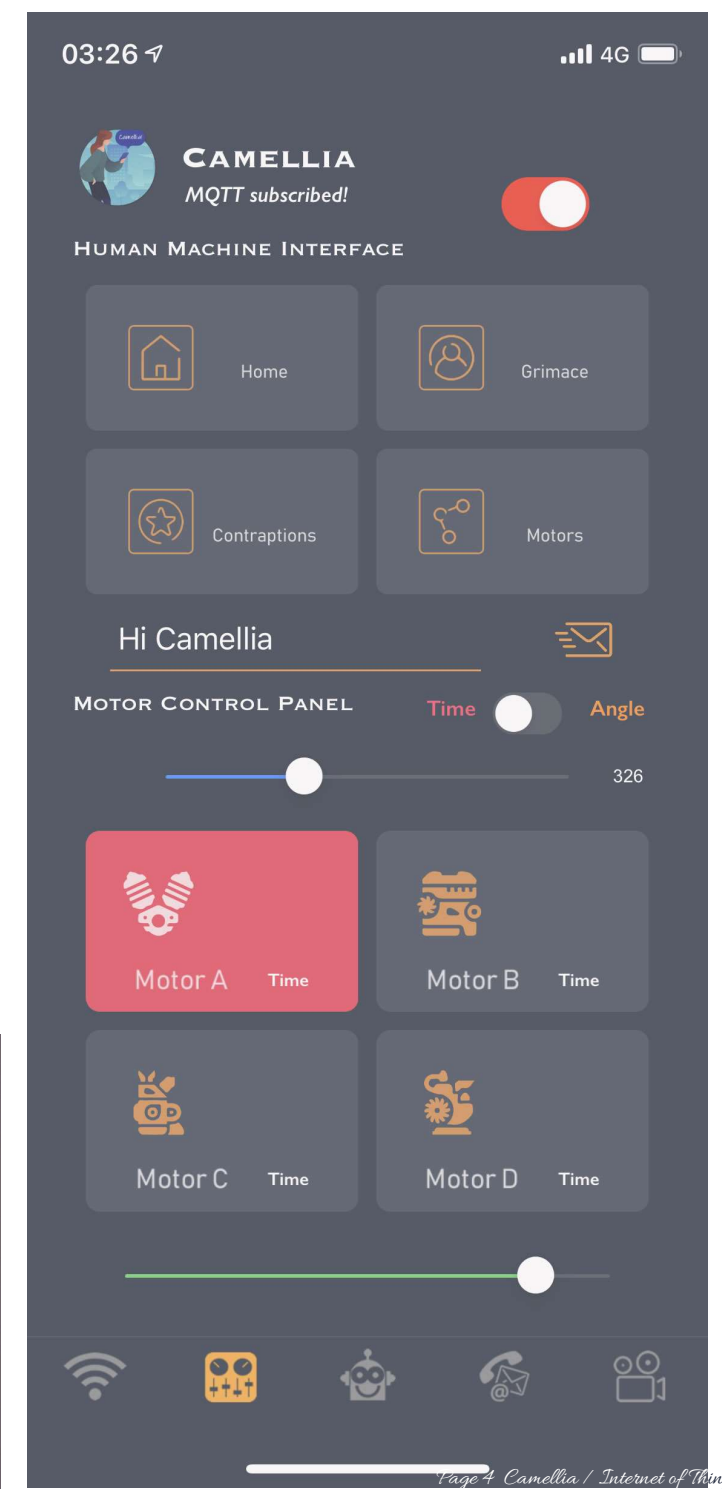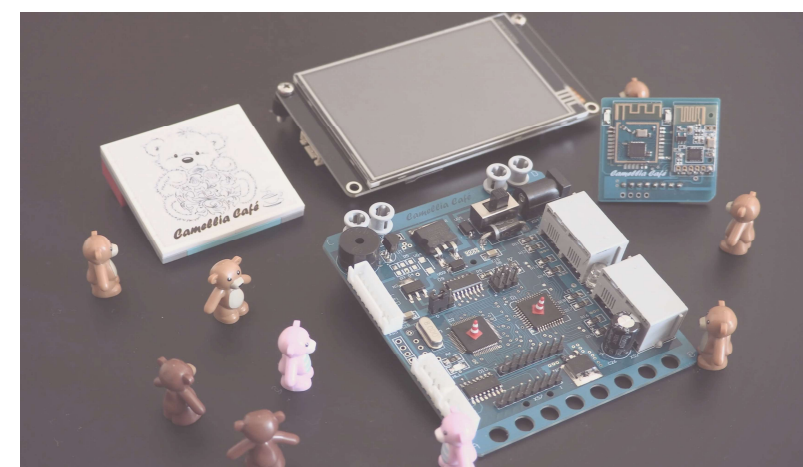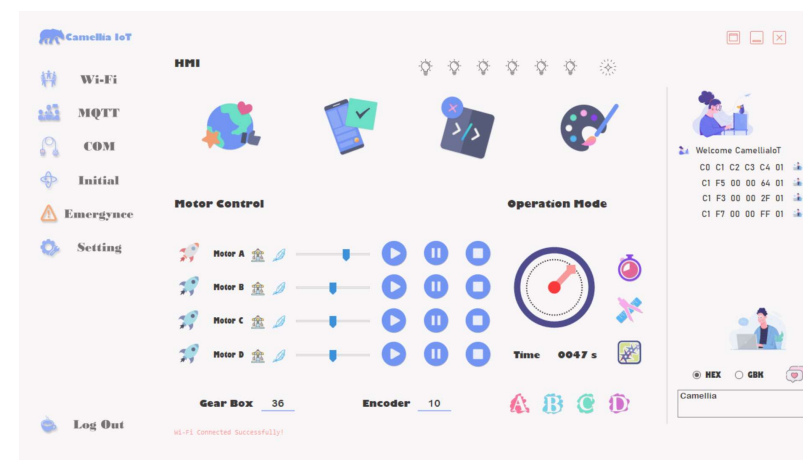
Imagine what we can do, now, using Human-to-Machine communications creativity, to help our children to increase their mathematical, physical and chemical knowledge.

Imagine what we can do, now, using Robots or Droids to help us to do everything everywhere in the world.

Imagine what we can do, now, using extremely reliable health monitors connected to local clinics where health workers can serve large populations across geographies using distance medicine.

Also, the friendly Human Machine Interface and **Natural Language Processing** Technology make us feel the connected machine not be a machine. The machine becomes human, which means it passed the Turing Test.

Human to Machine

[H 2 M]

With inventions which are securing sensors and controllers, protecting data in motion, improving the performance of connectivity solutions, and instrumenting almost every aspect of our lives

At the same time, maybe our Machine-to-Human and Human-to-Machine communications can become as intuitive as breathing.

How can human beings function when they are not only connected but also linked to their things from the moment they wake up to the moment they fall asleep... Even while sleeping, we may have our heart rate and breathing vital signs monitored.

There is so much to say about how we can create and govern a world where people and things co-exist without risking our safety or freedom.

Peer to Peer Swarm Intelligence

[P 2 P]

Peer-to-Peer is a distributed application architecture that partitions tasks or workloads between peers. Peers are equally privileged, equipotent participants in the application. They are said to form a Peer-to-Peer network of nodes.

In a P2P network, the peers are smart devices which are connected via the Internet. Information can be shared directly between devices in the network without the need of a central server.

In other words, peers are both suppliers and consumers of resources, in contrast to the traditional client-server model in which the consumption and supply of information and resource are divided.

It is not a problem that each peer has a different operating system. Android, iOS, Windows and Hardware Operation Platform have no barrier to link to each other.

Each device on a P2P network becomes an information server as well as a client. Once connected to the network, P2P allows one to control or to be controlled to or from each other.

Emerging collaborative P2P systems are going beyond the era of peers doing similar things while sharing resources. They are looking for diverse peers that can bring in unique resources and capabilities to a virtual community thereby empowering it to engage in more significant tasks beyond those that can be accomplished by individual peers, yet that is beneficial to all the peers.

Thus we could build swarm intelligence. Several digital machines, robots, droids and drones could work together to perform a task such as a 3D digital firework playing, which is environment-friendly.

The decentralized nature of P2P networks also increases robustness because it removes the single point of failure that can be inherent in a client-server based system. As nodes arrive and demand on the system increases, the total capacity of the system also increases, and the likelihood of failure decreases. If one peer in the network fails to function correctly, the whole network is not compromised or damaged, other digital machines, robots and droids could do more jobs to assist the failed ones. And the more connected peers, the perfect job is done.