Bliss Team
Educational Services

19th January, 2022

PROJECT PROPOSAL

Project Title

BREDHUB Robotics Community

Prepared for: The Executive Director

Description

The incorporation of **Artificial Intelligence and Robotics** as part of schools academics curricular is the major driver to effective preparation of our students for the growing and evolving technological world.

At BREDHUB/UBTECH students build and program robots to perform various life challenging tasks. This serves as a means to improve their problem-solving skills, and to gain insightful perspectives in fields of **Science, Technology, Engineering, Art and Mathematics (STEAM)**

Students also register at **BredHub** to represent their schools for local and international **Artificial Intelligence and Robotics** competitions.

BREDHUB represents UBTECH which is a global leader in AI and Robotics with presence in many countries on AI and Robotics. We are in universities globally conducting researches and providing updates to educational platforms to support the future generation in this evolving world of science and technology.

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Project Justification

Situation Analysis

Robotics and the idea of intelligent machines getting things done for humans is fast becoming the norm in many developed countries and rolling down to Africa.

In education which is BREDHUB core are of investment and passion, statistics has shown that graduates rarely have relevant skills to compete favorably on a global level due to an imbalanced curriculum which centers mainly on theory without practical hands-on sessions especially Artificial Intelligence and Robitics.

This is why this generation of young stars need to be fully equipped with adequate knowledge and skills to keep abreast of advancements in technology all over the world.

Priority Needs

The most pressing needs are:

- Giving a means for students to express Creativity and Innovation
- Consistent training programme
- Out sourcing the training programme to qualified and trained professionals.
- Exposing Students to local and international competitions to encourage interest and competition

Project Aims

Our objectives are to:

- Implement a daily/weekly training programme for students to effectively learn how to build and program robots.
- Help students gain insightful perspectives in fields of **Science, Technology, Engineering, Art and Mathematics (STEAM)**
- Empower students to compete favorably with their peers all over the world, through involvement in local and international competitions
- Boost our partners global image by making her more recognized internationally among other schools around the world.

Why UBTECH/BREDHUB Platform

UBTECH is a global leader in AI and Robotics with presence in many countries on AI and Robotics
UBTECH is located in many universities globally conducting researches and providing updates to educational platforms
The uniqueness of the UBTECH Robotics Ukits make it a top choice robotics educational resource.
The functionality is fluid and very versatile and child friendly
It is easy to navigate and use
Uses Scratch and C for basic computer programing language
Controllers are easy to use on tablets and smart phones
Fluidity of models for construction and programing
Excellent technical service support from UBTECH globally
Quick introduction of robotics to students without ambiguity
Pocket friendly

Implementation

Exhibition

The first step is to create awareness. To get prospective members to indicate interest by signing up, we give a one-day Robotics Exhibition on the School's Open day, Visitation day, PTA meeting or General assembly. This also gives students a feel of what they would be leaning.

Training

Our training sessions are fully hands-on. Participants learn while having fun in a relaxed environment different from a class room setting.
We will have three groups of learners

- Creative Building ENTRY

Lower Primary School children follow building instructions to come up with structures like houses and animals.

- Simple Machines and WeDo ADVANCED

Children then learn the concepts involved in creating simple machines, building mechanical structures and programming them to make the required motions.

- Robotics Building and Programming EXPLORE

Upper primary to secondary level students get to build robots using pieces mostly from UBTECH kits with a controller (brain) that sends and receives information to motors and sensors.
Students are also taught how to program these robots using computer software in order to make them respond intelligently, to various changes in their environment.

Bredhub Robotics Community (**Onsite Training)**

Fee

BredHub support staffs come around once a week with all the required robotics materials to train signed up students as an extracurricular/Community activity.

Students interested in robotics competitions can sign up at BredHub.

Students have access to robotics materials once a week

Assumptions/Requirements:

School has three free rooms or a big hall to accommodate trainees for the Community period.

Fee for Training a child per term:

₦65, 000 (Sixty-Five Thousand Naira Only)

This will cover:-

- ❖ The required robotics resources
- ❖ Bred Hub staffs to train the students excellently throughout the term
- ❖ Worksheet
- ❖ Textbook
- ❖ Evaluation Booklet

The School however gets a 10% of this fee to cover administrative costs, if up to 100 (One hundred) students register to be part of the community.

Bredhub Robotics Community (**Online Training)**

We believe in the midst of COVID-19 pandemic, learning should not stop thereby want to encourage the children through your school to join an interactive virtual AI Robotics community so as to keep abreast with Artificial Intelligence (AI) education which is the future.

Assumptions/Requirements:

Children have access to tablets, desktops, laptops and phone with internet at parental support to join the class.

Fee for online robotics class, a child per month:

₦50, 000 (Fifty Thousand Naira Only)

N:B The AI Robotics kits which will be delivered to the home of participants to use for the duration of course of study and to be returned to **Bredhub** after course of study. The kits are also available for sales.

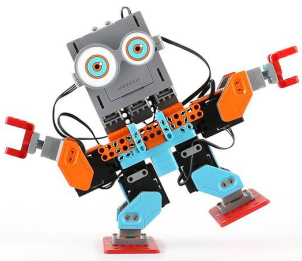
The School however gets a **10%** of this fee to get children sign up for the virtual robotics class.

Competition

The children will have termly inter-house competition where winners will be further groomed to represent the school in local and international competitions.

Intensive Training

BredHub will equally offer an intensive learning on Artificial Intelligent/Robotics on Saturdays with the option of 10:00a.m – 12:00pm **or** 2:00pm – 4:00pm. The class involves external children from other schools coming into your school to learn Robotics and the school pupils who want to further their learning on AI robotics.



Benefits

Some of the many benefits of having our Robotics Community as an extra-curricular activity are:

- It prepares young children for future technology and stirs up a passion for Science, Technology, Engineering, Arts and Mathematics.
- Students are engaged in practical classes on Robotics Programming and the logic behind the program controlling the robot.
- **The school** gets a unique extracurricular activity added to its portfolio.
- Students stand the chance to compete with their peers nationally and internationally in competitions such as the World Robot Olympiad (WRO), First Lego League (FLL), Pan African Robotics Competition (PARC), Vex IQ/Robotics and many more.
- The school boosts its image by gaining international recognition with other schools around the world who do the same.
- No financial investment in acquiring robotic materials or trainers.

Next Steps

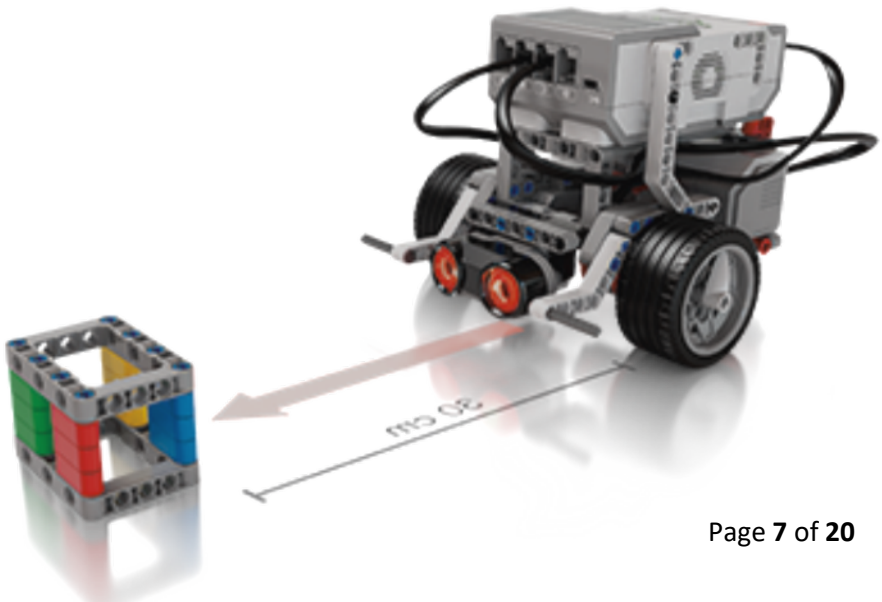
Thank you for taking out time to go through this proposal.

You only need to do one thing!

- Write or call us to give your approval for the training programme.

Let us know if there is any part of the above proposal you will like us to review.
We expect to hear from you soon.

Thank you!



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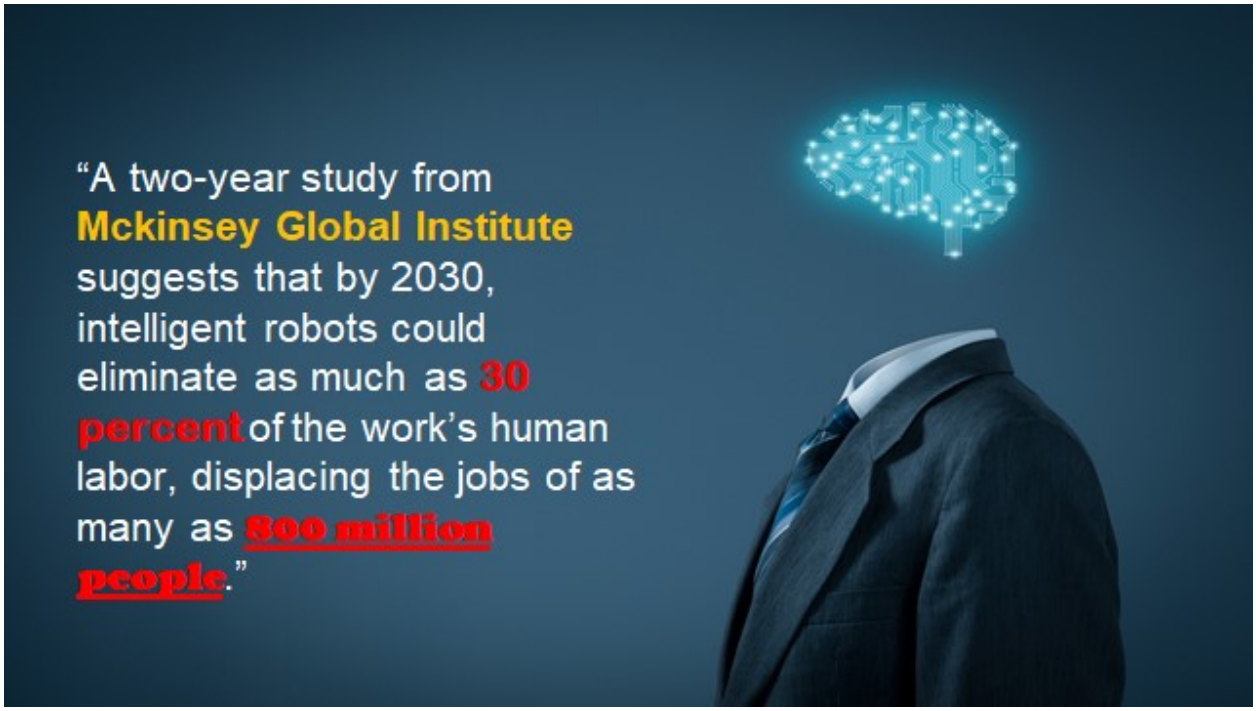


❑ Bliss Robot Education Hub is a Nigerian registered robot and STEM training hub

❑ Created out of School children's desire to learn robotics and other new technology.

❑ We use a variety of robotic resources to provide platforms for Nigerian and other African Children to express their creativity and innovation for problem solving.

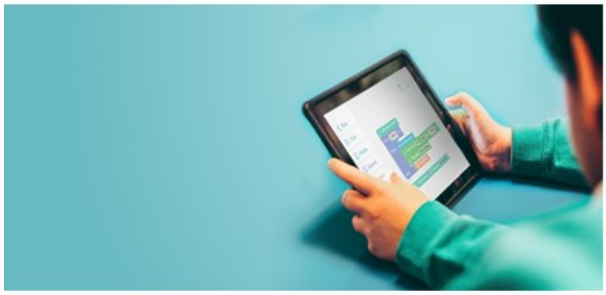
At Bliss Robot Education Hub, we foster Robotics Learning as a means to stimulate ideas and innovation to improve life on Earth.

We also guide and support children to participate in local and International competitions

As well as research towards improving the use of robots in making everyday life more productive

UBTECH

"An Education Revolution is essential in preparing our future generation in adapting to the **fast changing work environment**"

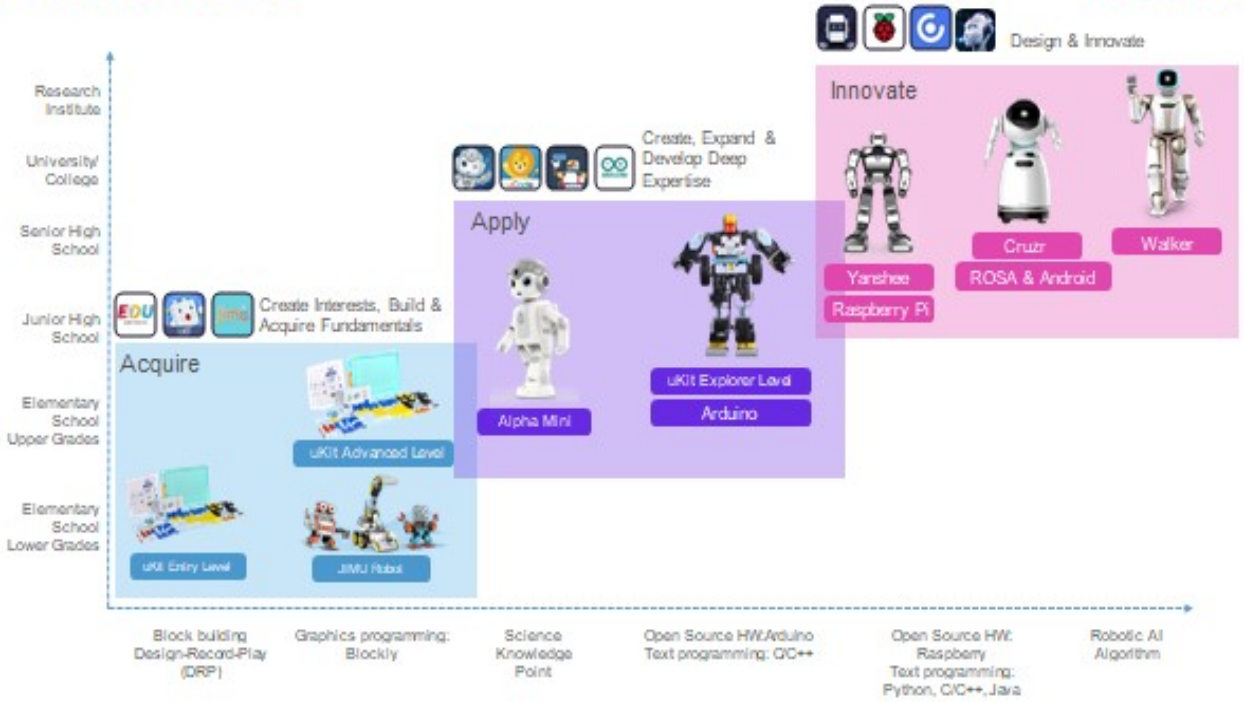


Ukit Series

Entry + advanced

Teaching Tools

UBTECH



A²I Robotic Education Pedagogy

UBTECH

Acquire

- Create Interest
  through fun, interactive and activity based learning
- Acquire and Build
  fundamentals of AI, Robotic & Coding in a systematic and progressive curriculum

Apply

- Applying fundamentals
  into real life scenario, application and competitions
- Project Based Program
  develop learners' inquisitive and creative mindsets, problem-solving skillset and team work

Innovate

- Innovate and Design
  based on learner's creation and culmination of technologies
- Develop Deep Domain Expertise
  through high end researches, participation in forum and conferences

02

Hardware of Ukit

What is uKit?

- UKIt is a series of STEAM education product that focused on the programmable building block suite, through hundreds of building block parts, it can create any shape with specific functions.
- With dynamic drawing on the APP, it can exercise students' hands-on ability, so that students can access to the modeling world easily.
- There are three levels of ukit products: entry/advanced/explore

2. What is the difference between the three products?

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	uKit entry	uKit advanced
Grade	Primary school	Primary school
Number of plastic parts	309 PCS	479 PCS
Number of Servo motor	4	4
Number of Courses	12	13
Ability item	Mechanical physics knowledge/ Hands creative ability/ PRP programming	Mechanical physics knowledge/ Hands creative ability/ PRP programming Blockly Graphical Programming
Electronic Modules		Infrared Sensor, Touch Sensor, LED Lights, Bluetooth Speaker

3. Hardware of uKit

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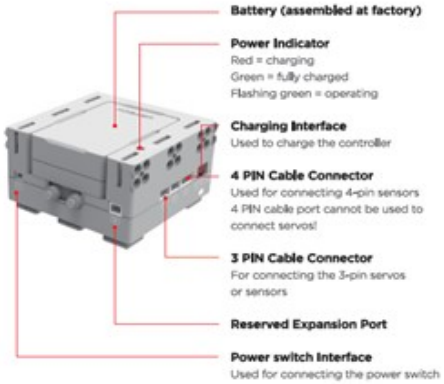
Dismantling device

3.1 main control box

The brain of Robot



3 Features

The main control box has slots, plugs, and ports, which allows the robot be assembled by splicing, integrating, and connecting

2 Cable Connectors

Two kind of cable connectors, 3 pin cable connector for connecting 3-pin servos or sensors, 4 pin cable connector for connecting 4-pin sensors.

100 Mins

Fully charged can use 100 minutes

3.2 Robotic Servo Motor

Servo is the joint of Robot and can be used to perform various movements. There are 2 available types of movements can be controlled via the APP :

- Angle mode – the accuracy of angle rotation is 1°.
- Wheel mode – Supports up to 360 degrees rotation for operation control.

Servo ID

Each servo has an ID number to distinguish it from other servos.

Slots

There are 5 slots on the servo with which the rudder can be spliced , named "ABCDE".

Rotatable Rudders

The rudder of the servo can rotate.

3-Pin Port

Energy and information can be transmitted between the MC box and servos.

3.3 Sensor

Infrared Sensor

Infrared sensor helps the robot to detect eternal changes. With the use of infrared sensors and APP programming, the robots **can avoid obstacle, tracing and other functions.**

Bluetooth Speaker

Bluetooth speaker is the robot' s voice. It supports third party software.

Touch Sensor

The touch sensor allows the robot to feel the pressure outside, and perform actions.

LED Lights Module

LED Light module is the robot' s eyes. uKit APP displays official effects or new expressions created by the users.

3.4 Connectors

The skeleton of Robot

A Function

Slots or rudders of connectors can be spliced together with other components' rudders or slots

A Tip

In step 3, push the part on the right side in the direction of the arrow until you hear a 'clicking' sound

3.5 Character Parts

Power Switch, Fasteners, Connection Cables

Power Switch

Power allows ukit Robot to operate. Use the connecting cable to connect the power switch to the MC box

Decorative Parts and Connectors

Fastener can be integrate character parts, connectors, the controller, and servos together through holes

Connecting Cables

Connecting cables can connect the MC box with servos as well as between each servo. It can also transmit energy and commands between the MC box and servos

03

Software of Ukit

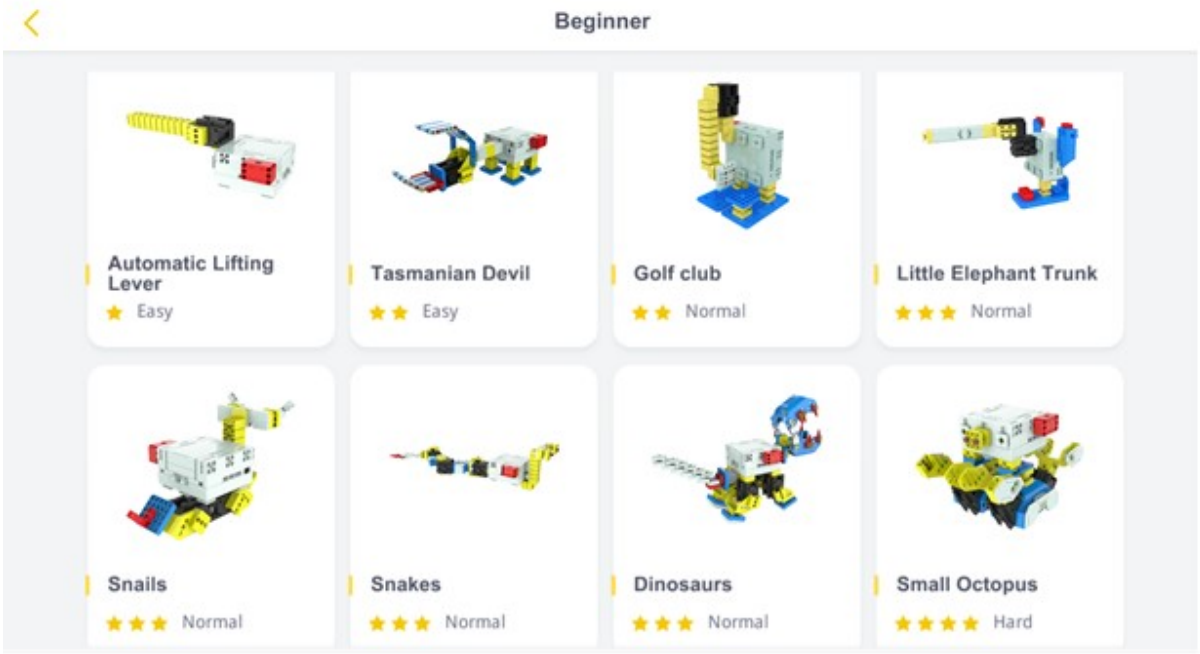
APP Interface

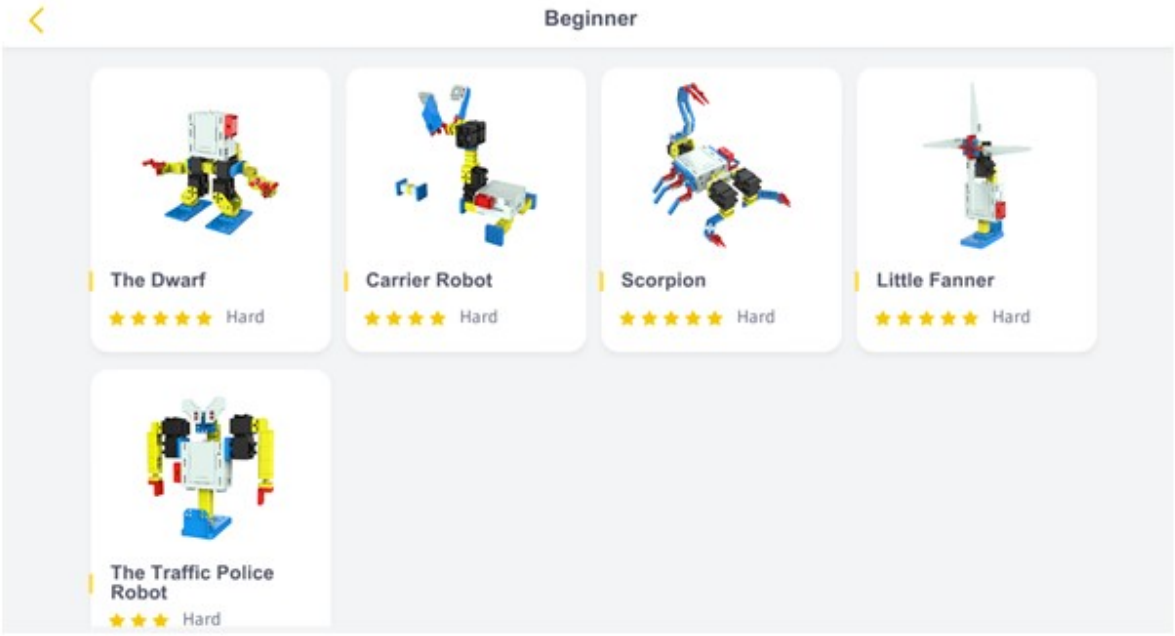
04

Curriculum of Ukit

4.1 The curriculum of uKit Entry

unit	topic	objectives
Unit 1	hello, robot	Knowledge about robots
Unit 2	automatic lifting level-form of motion of object	Motion of object
Unit 3	Tasmanian devil-opening and closing motion of the mouth	Bionic knowledge
Unit 4	golf club-measurement of distance, force and motion	Math and engineer
Unit 5	little elephant trunk-joint and degree of freedom	Movement of robots
Unit 6	snails-measurement of time and calculation of speed	Physical and math
Unit 7	midterm creative class-industrial robot	Creativity
Unit 8	snakes-influences of interface on friction force	Animal knowledge Movement of robots Physical and math
Unit 9	dinosaurs-quadruped gait	
Unit 10	Small octopus-change of gravity center and object movement	
Unit 11	The dwarf-bipedal gait	Humanoid robots
Unit 12	End of term creative class-bionic robot	creativity

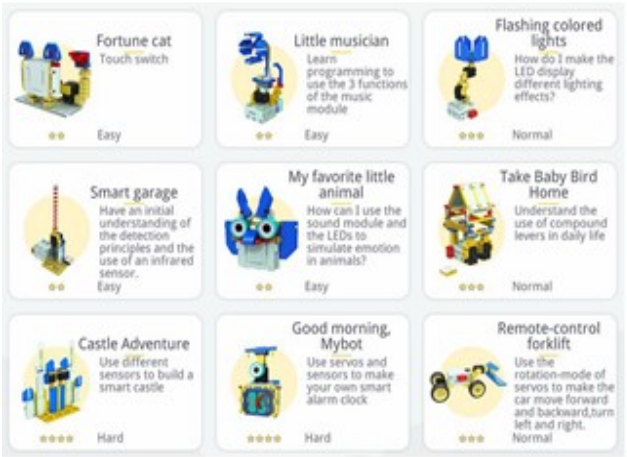

Beginner
Automatic Lifting Lever
Easy
Tasmanian Devil
Easy
Golf club
Normal
Little Elephant Trunk
Normal
Snails
Normal
Snakes
Normal
Dinosaurs
Normal
Small Octopus
Hard


Beginner
The Dwarf
Hard
Carrier Robot
Hard
Scorpion
Hard
Little Fanner
Hard
The Traffic Police Robot
Hard

4.2 The curriculum of uKit Advanced

unit	topic
Unit 1	Fortune cats-touch switch
Unit 2	Little musician-various sounds
Unit 3	Flashing colored lights-measuring angle&understangding light and colour
Unit 4	Smart garage-measuring distance with infrared sensors
Unit 5	My favorite little animal-time measurement & frequency
Unit 6	Baby bird's way home
Unit 7	Castle adventure-angle measurement and speed calculation
Unit 8	Good morning, mybot
Unit 9	Remote control forklift
Unit 10	Police cars-the nature of sound, color secrets and control of servo motors
Unit 11	Obstacle avoidance trolley-reflection of lights
Unit 12	Street sweeper-distance measurement & speed calculation
Unit 13	Secret weapons: robotic arms-infrared sensor detecting the black and white

◆ Course Content



◆ Course Structure

05

Usage Suggestion of ukit

Use suggestion of uKit for School

	uKit entry	uKit advanced
Participants	20-30 students	20-30 students
Teaching Personnel	Teacher (1 person) + Assistant (1 person)	Teacher (1 person) + Assistant (1 person)
Equipment Quantity	20-30 Sets (1-2 Set Per person)	20-30 Sets (1-2 Set /Person)
Duration	45-60 Minutes (suggest)	60-90 Minutes (suggest)
Sessions	12	13

Competitions we have attended