App Inventor User's Guide

0. Preparation

Required devices

1. **Internet wireless router** (WiFi)

2. **PC** (both available at desktop and laptop)

3. **Smartphone**
   (Any type with Android system)

0. Preparation

Must-dos before start

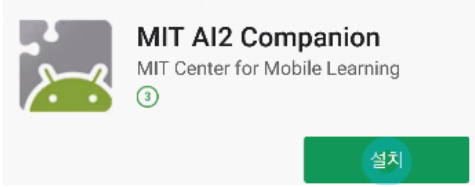
1 Install ‘Chrome’ Broswer

To use App inventor, you are required to use **Google’s ‘Chrome’ browser which is the most optimized with App Inventor.**
If you haven’t installed ‘Chrome’ yet, please download ‘Chrome’ first.

2 Create Google account

You must have Google account to use App Inventor.
If you don’t have it, please log in to Google first.

3 Install AI2 Companion app

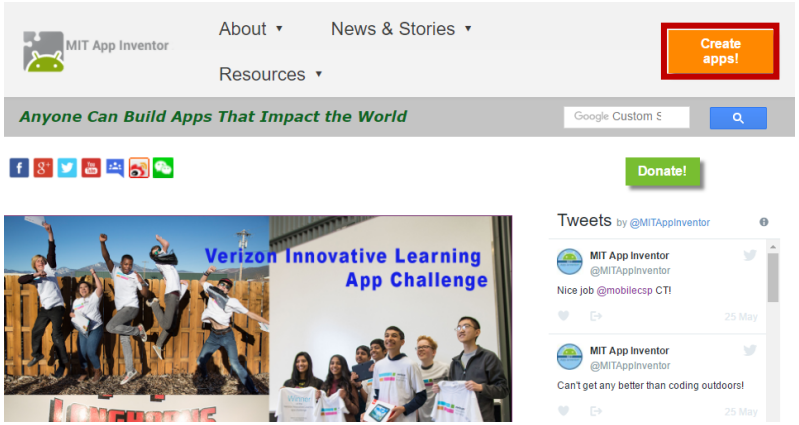


Please download ‘ **MIT AI2 Companion** ’ from **Play store.** This application helps you to understand how your project is going by connecting your smartphone and App Inventor program in real-time.

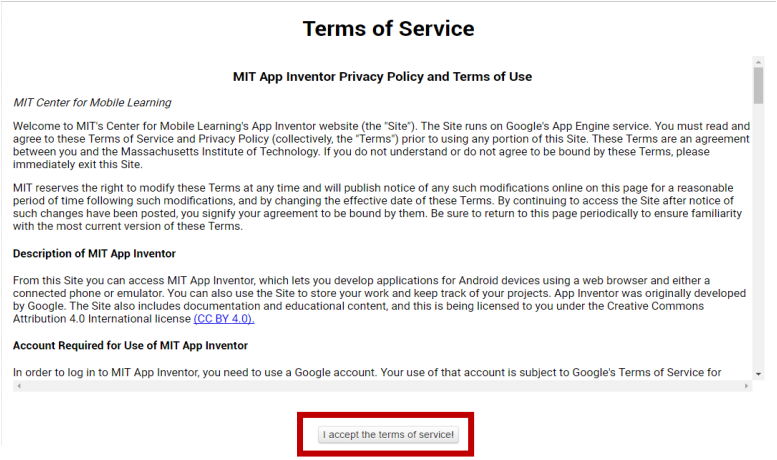
1. App Inventor

Access to App Inventor

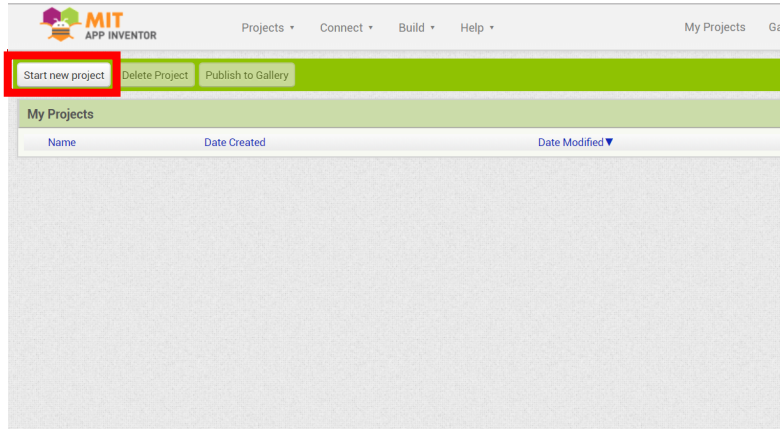
1) Access to http://appinventor.mit.edu/ , click ‘ Create apps! ’



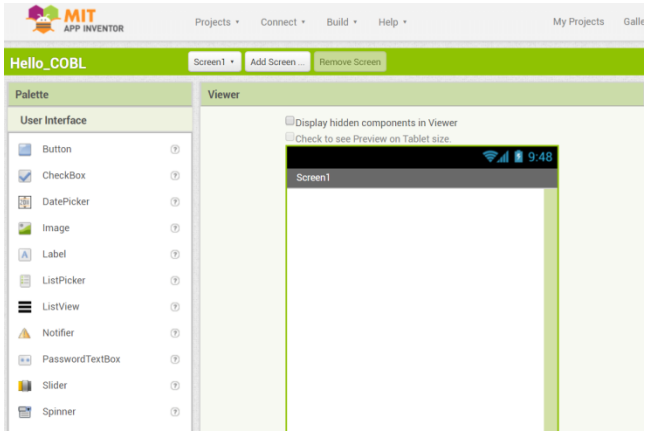
2) Accept the terms of service



3) Start a new project



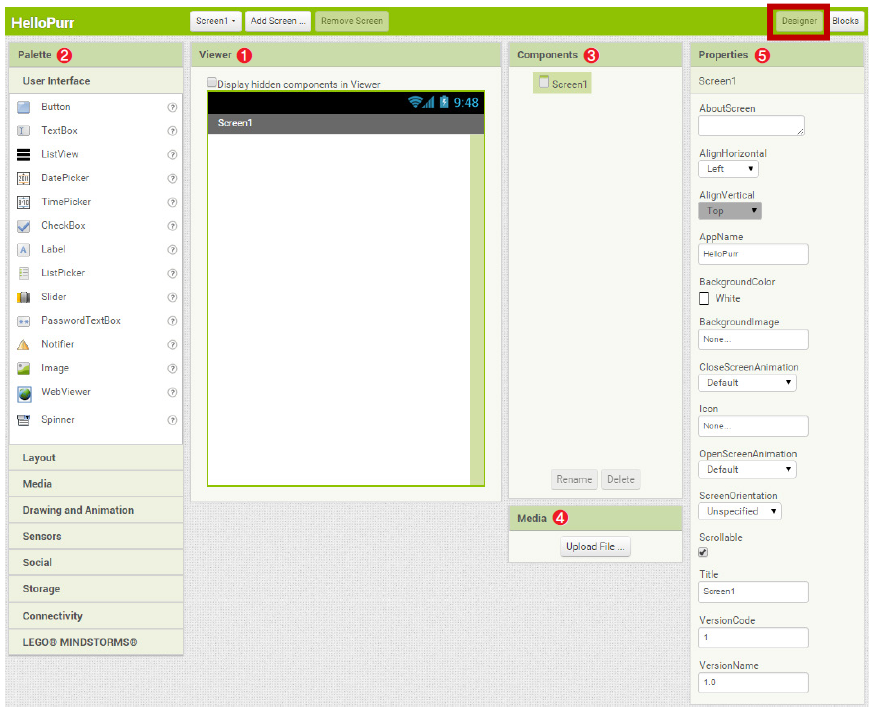
4) Basic screen



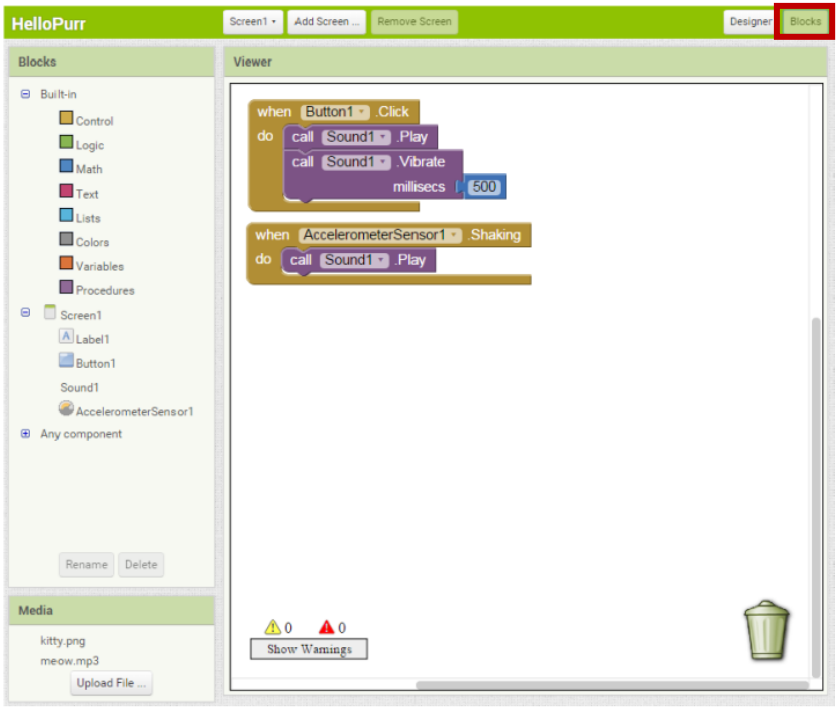
1. App Inventor

App Inventor Structure

Generally, App Inventor consists of 2 kinds of pages.



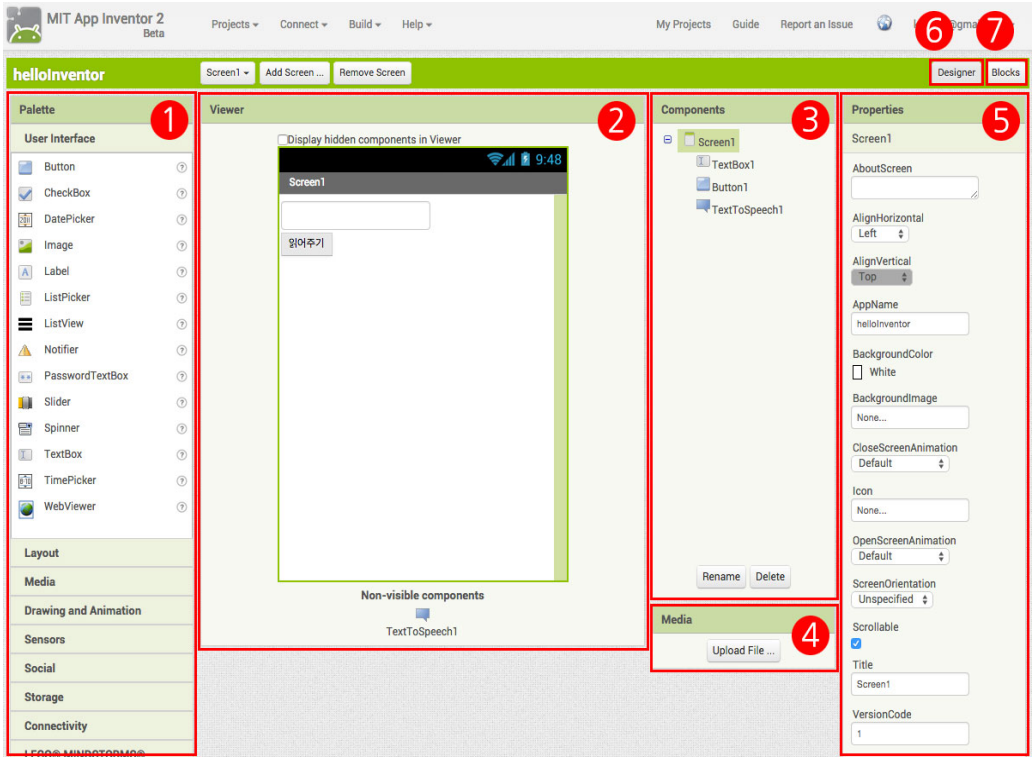
Designer screen
Screen shown on smartphone app



Block Editor screen
Blocks to code each function for app

1. App inventor

Designer Screen



1 Palette

Pallet displaying components to code your app

2 Viewer

Screen when your app works

3 Components

Components blocks you used

4 Media

To upload picture, music, and video For app

5 Properties

To change properties of each component

6 Designer

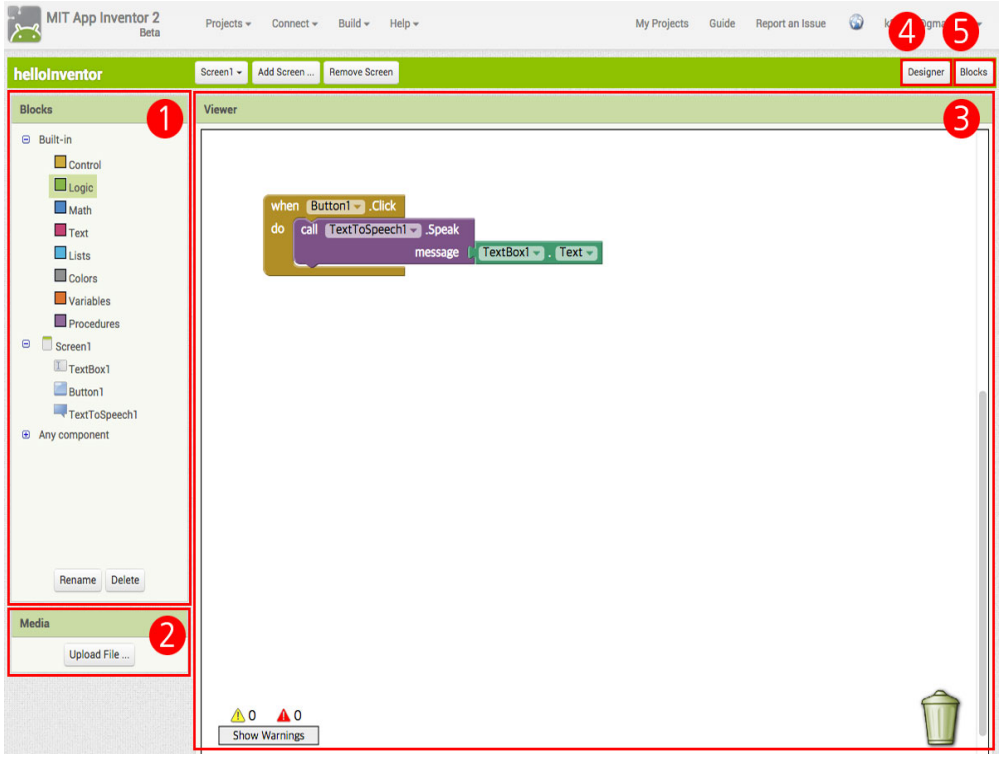
Go to Designer page

7 Blocks

Go to Block editor page

1. App Inventor

Block Editor screen



1 Blocks

Blocks for coding.
Consist of built-in blocks and components blocks.

2 Media

To upload image, music, or video for App

3 Viewer

To arrange blocks for coding

4 Designer

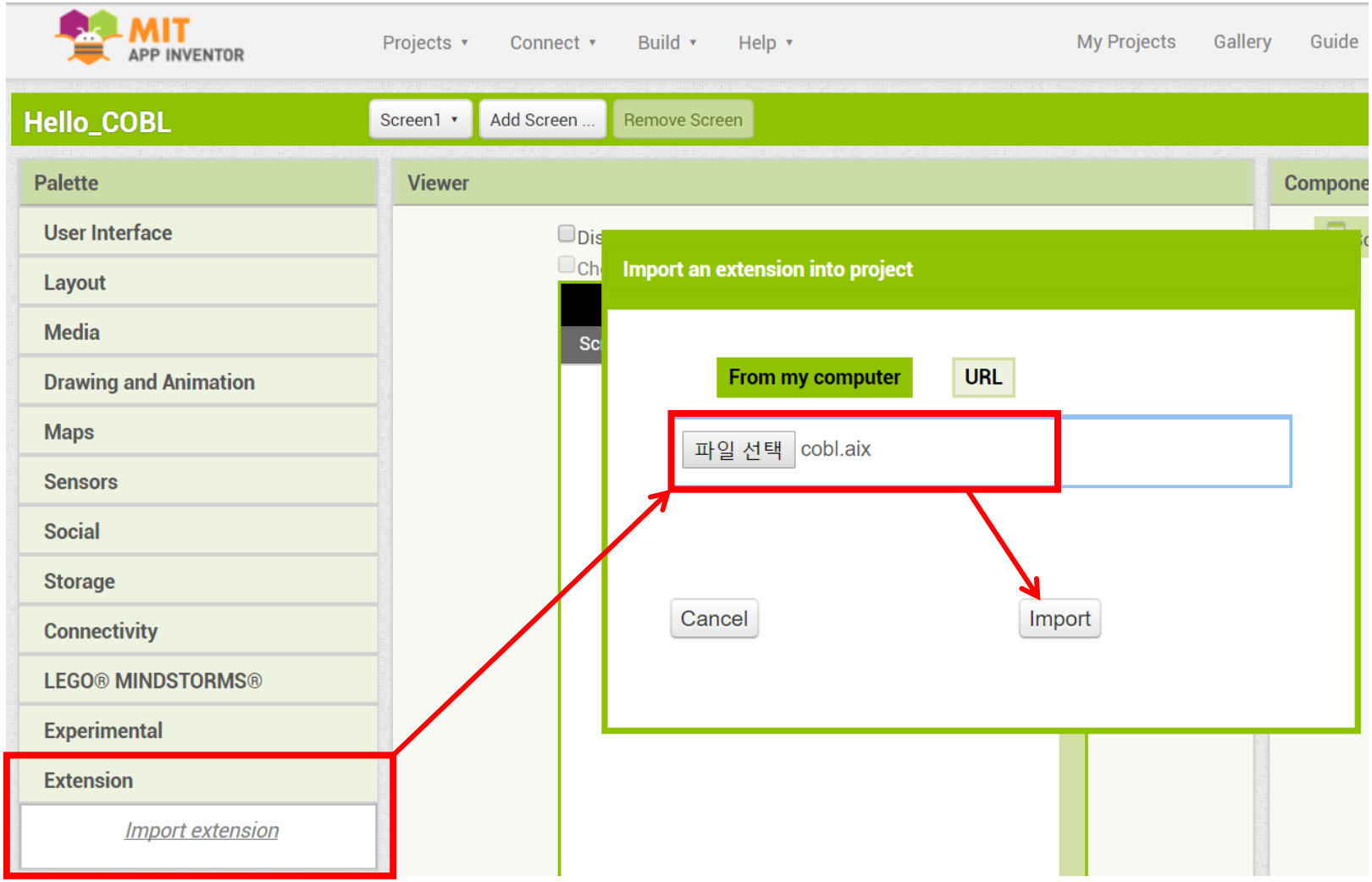
Go to Designer page

5 Blocks

Go to Block editor page

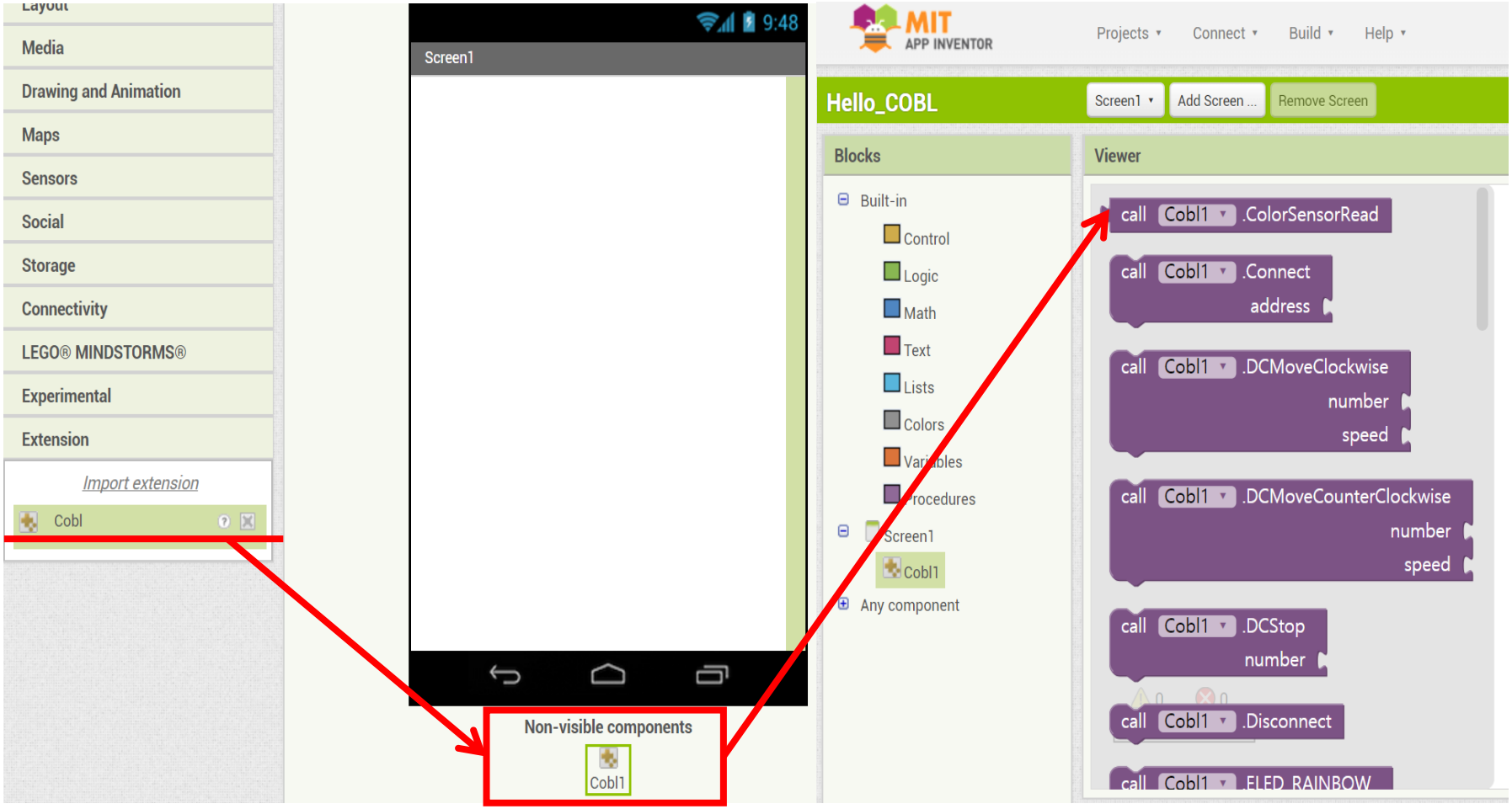
2. Load COBL at App Inventor

Basic App Inventor → Extension → Import extension → **cobl.aix** import

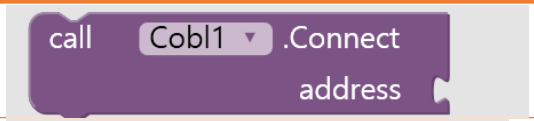
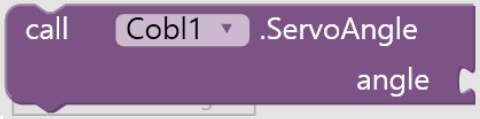
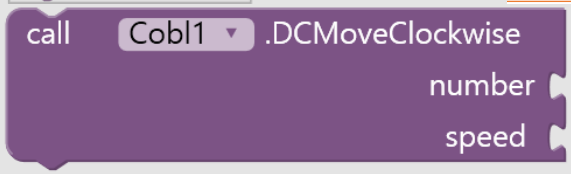
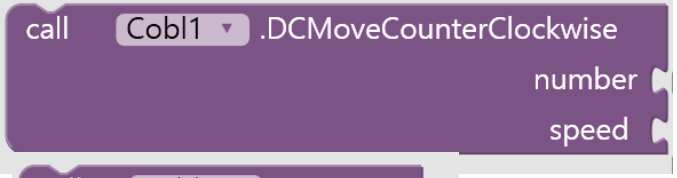
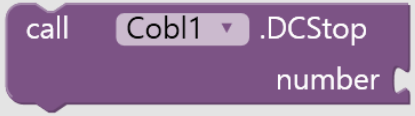
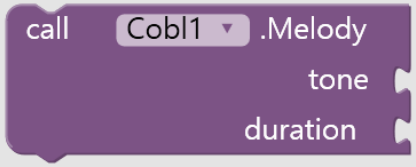


2. Load COBL at App Inventor

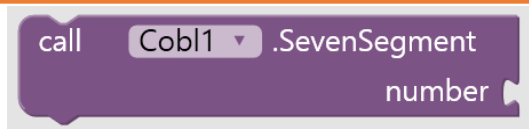
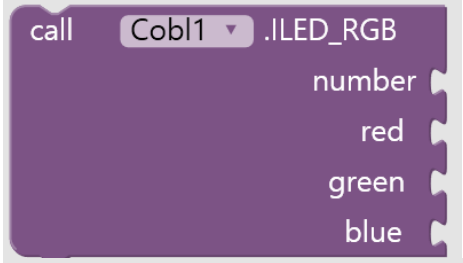
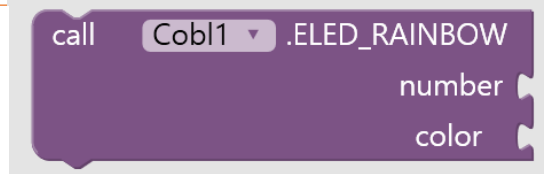
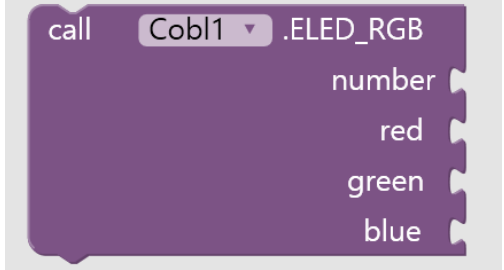
When drag & drop COBL on screen,
You can check block COBL blocks on Block editor page.



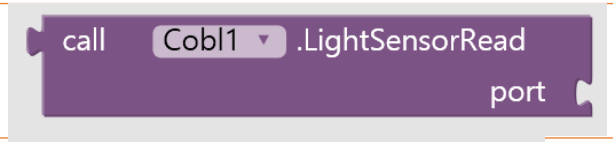
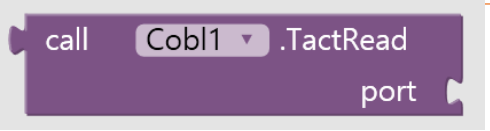
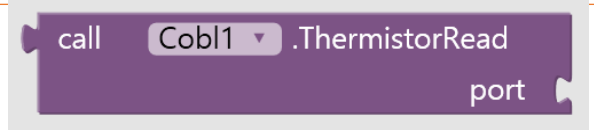
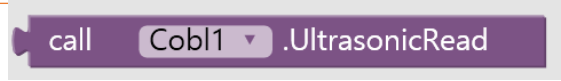
3. COBL blocks for App Inventor

COBL blocks	Function
	Connect COBL Board to designated address
	Disconnect with COBL Board
	Set angle of Servomotor (15~165 degree)
	Set speed(0~255) of DC motor 1~2 clockwise
	Set speed(0~255) of DC motor 1~2 counterclockwise
	Stop DC motor 1, 2
	Play melody with tone(Hz) for certain seconds(milliseconds)

3. COBL blocks for App Inventor

COBL blocks	Function
	Show 4-digit on 7 segment display (0~9999)
	Light Board LED #1~3 with designated color (0 turn off, 1 red, 2 orange, 3 yellow, 4 green, 5 blue, 6 navy, 7 purple, 8 white)
	Light Board LED #1~3 according to RGB color
	Light exterior LED #1~3 with designated color (0 turn off, 1 red, 2 orange, 3 yellow, 4 green, 5 blue, 6 navy, 7 purple, 8 white)
	Light exterior LED #1~3 according to RGB color

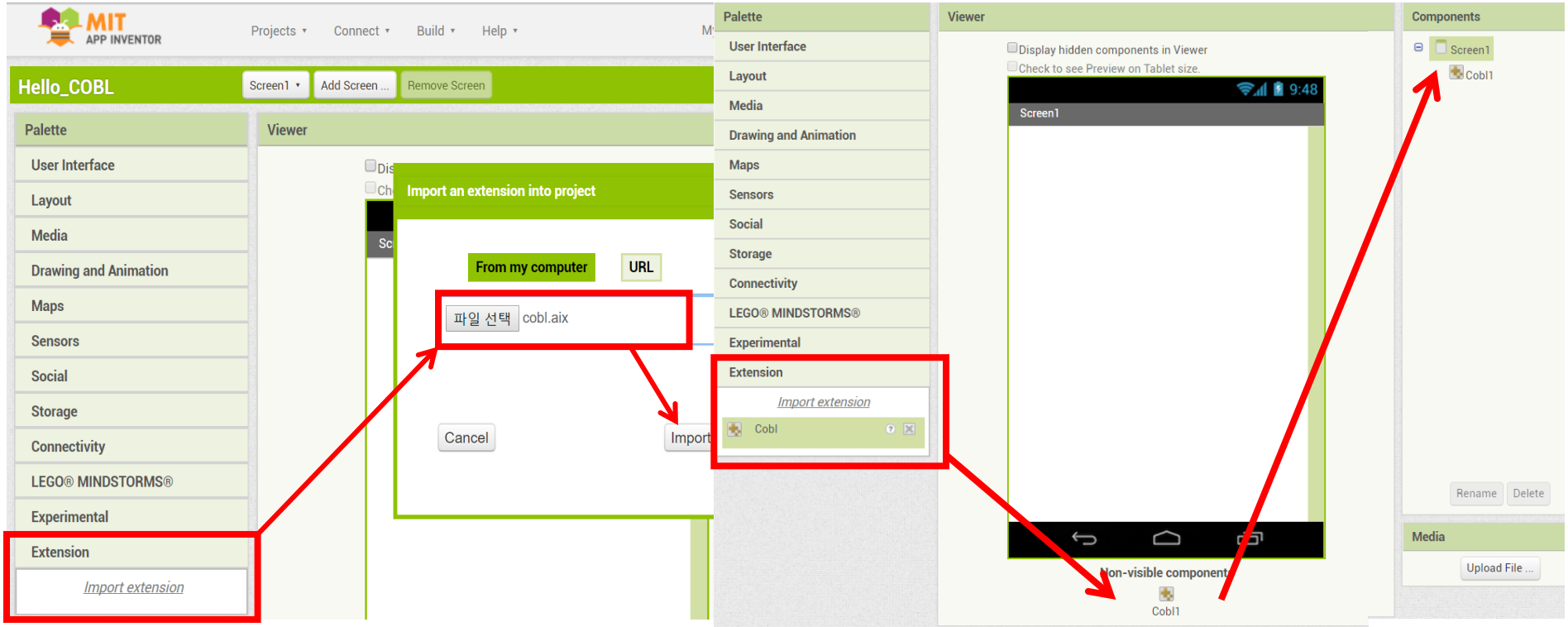
3. COBL blocks for App Inventor

COBL blocks	Function
	Read value of IR sensor #1, 2(0~1023)
	Read value of joystick X, Y axis (1, 0, -1)
	Read value of light sensor (port 1,2 means where connects to COBL board)
	Read value of potentiometer (0~1023)
	Read whether button switch is pushed (port 1,2 means where connects to COBL board)
	Read value of temperature sensor(port 1,2 means where connects to COBL board)
	Read value of ultrasonic sensor (cm)

4. How to Make COBL App (Basic connection)

Designer ① import COBL.aix

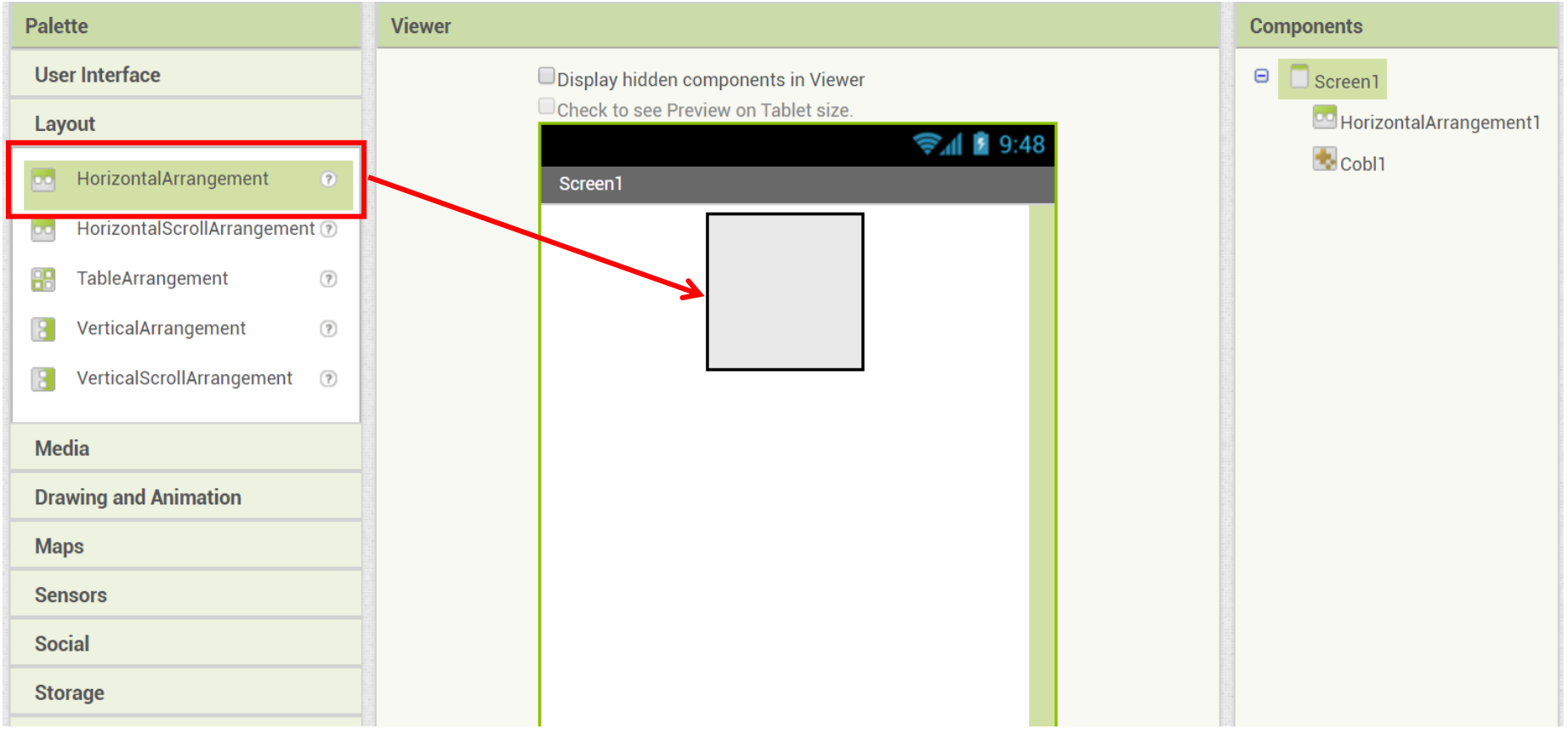
After importing **cobl.aix** to App Inventor, COBL blocks are added



4. How to Make COBL App (Basic connection)

Designer ② Add horizontal arrangement

Add **horizontal arrangement** to viewer

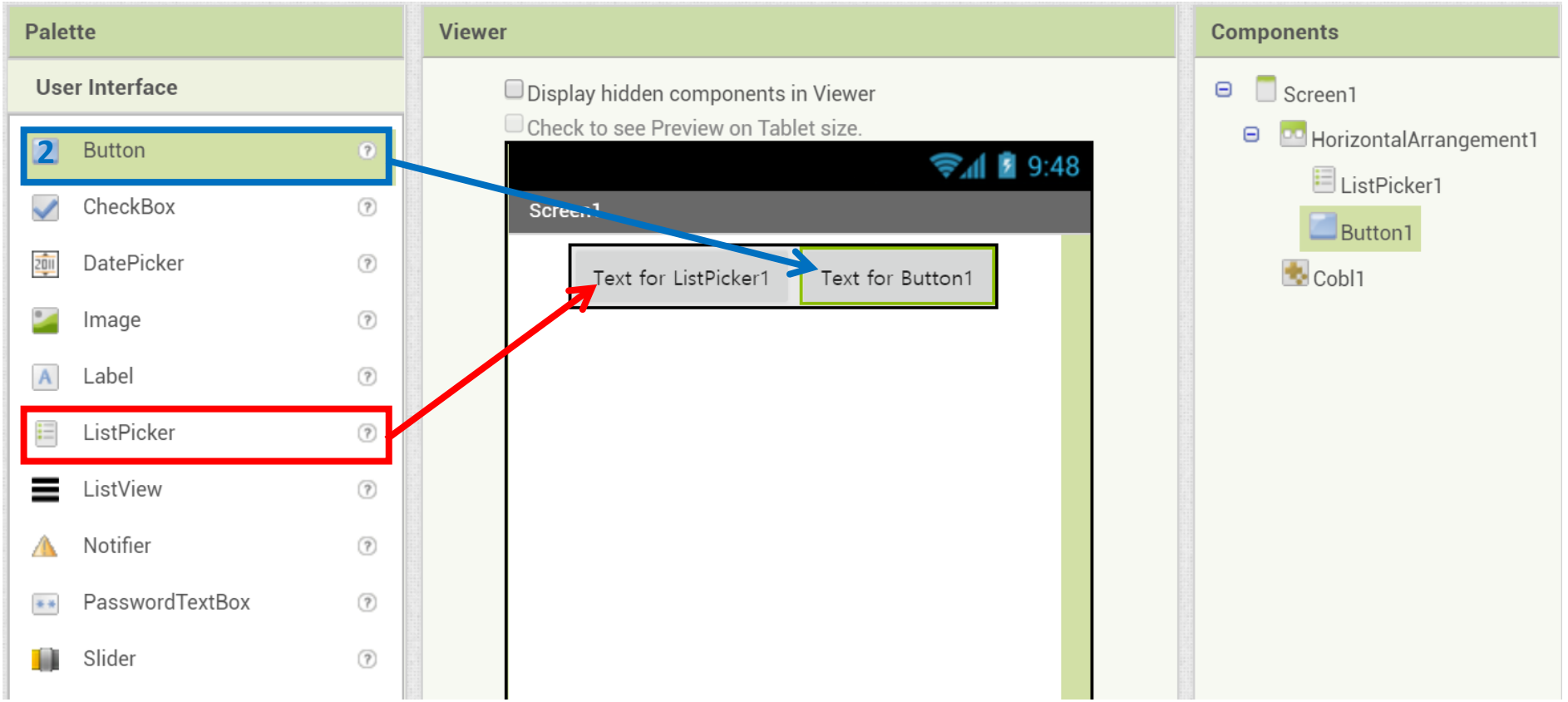


* Reason add 'horizontal arrangement' is arrange more than two blocks horizontally.

4. How to Make COBL App (Basic connection)

Designer ③ Add List picker and button

Add **List picker** and **Button** to viewer.

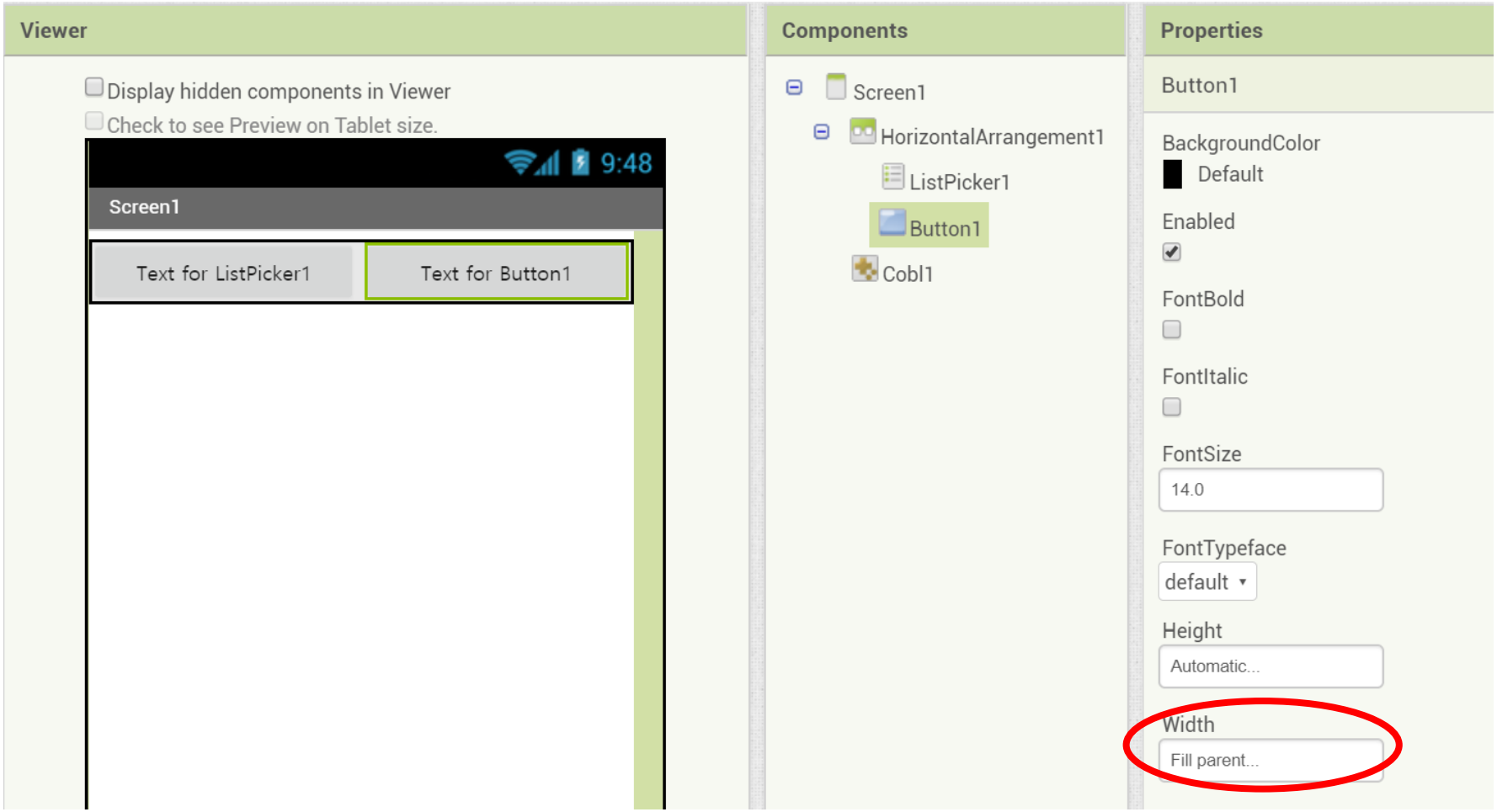


* Please use List picker not Button so that you can choose correct BT when clicked.

4. How to Make COBL App (Basic connection)

Designer ④ Set width to 'fill parent'

Fill width of Horizontal arrangement, List picker, and Button to **'Parent'.**

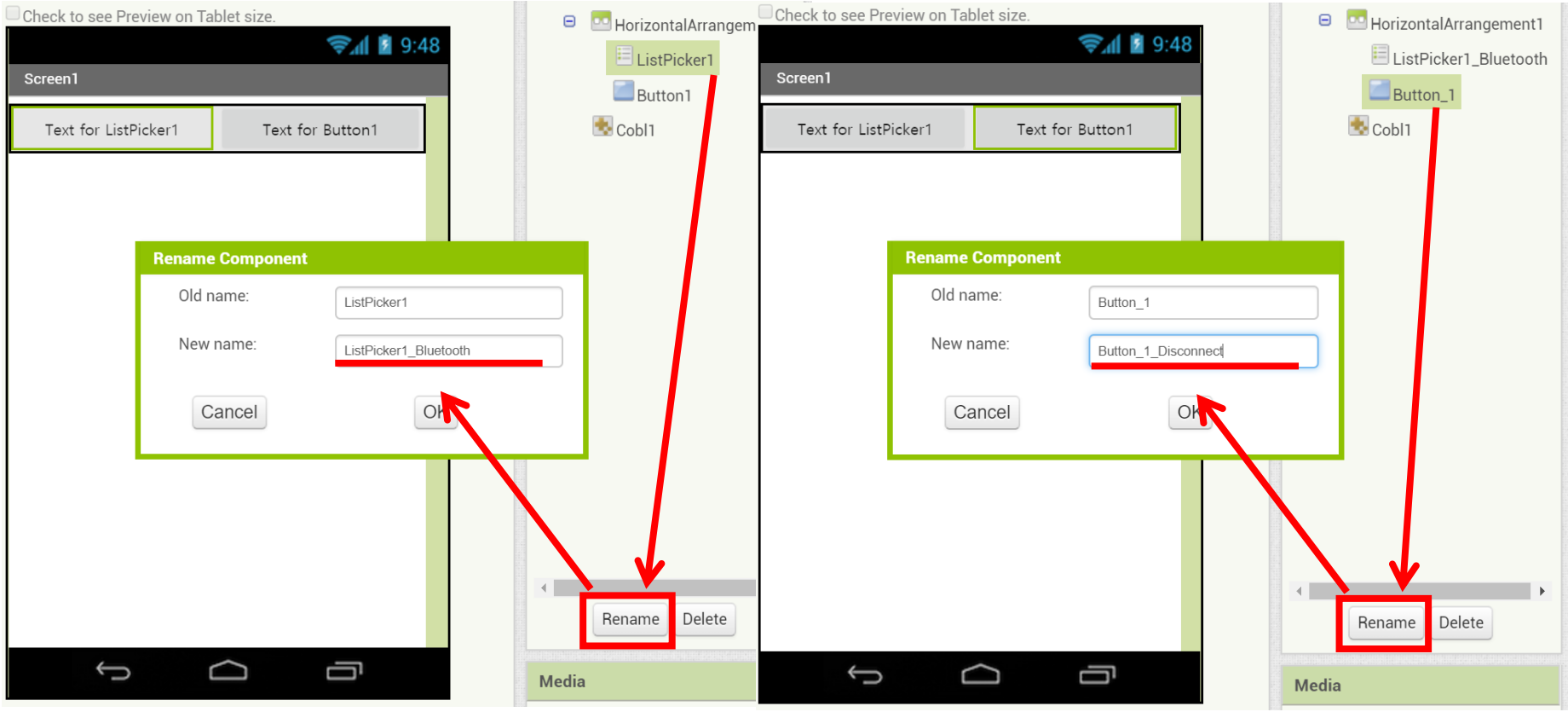


* Please use List picker not Button so that you can choose correct BT when clicked.

4. How to Make COBL App (Basic connection)

Designer ⑤ Change component name

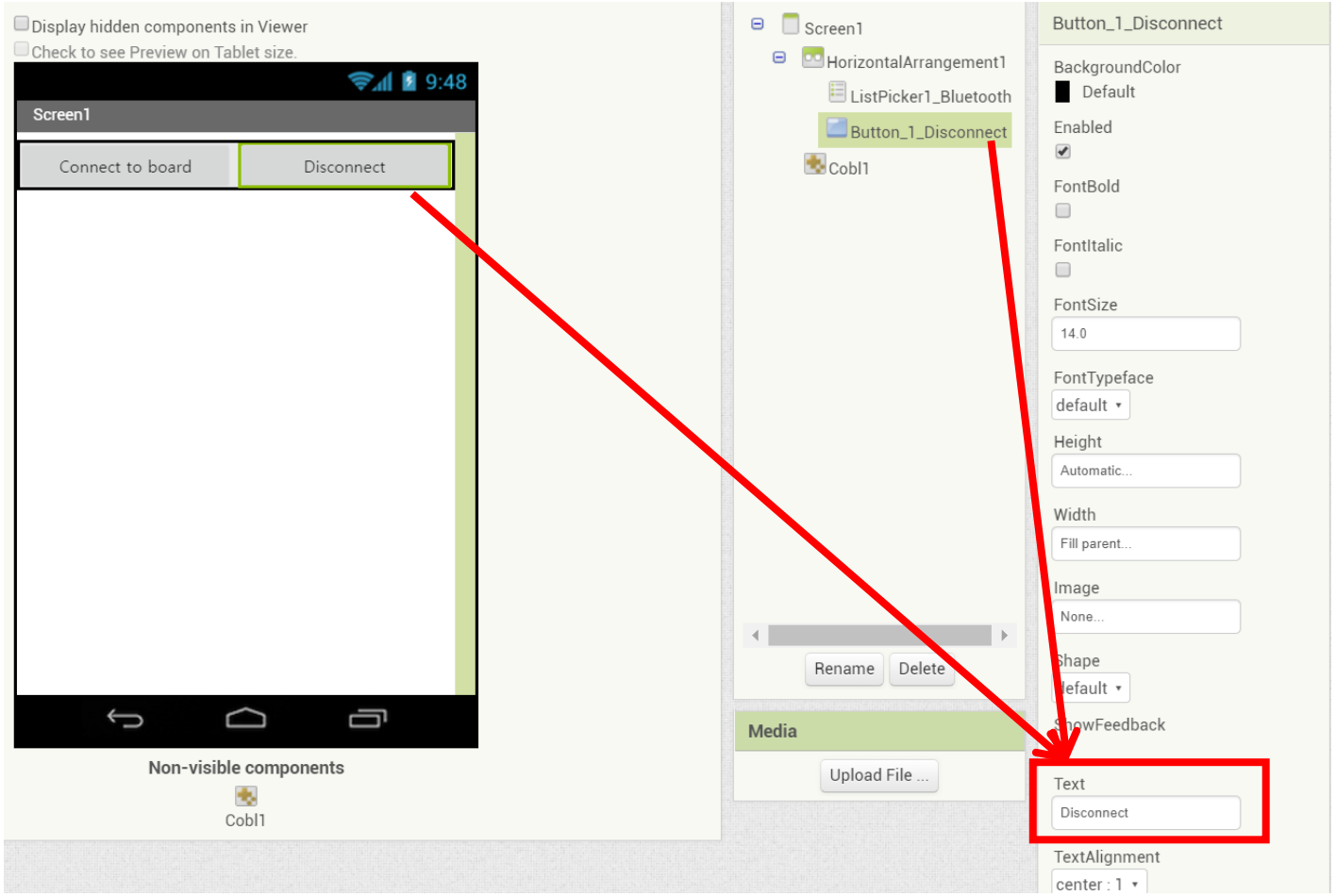
Change component name by their purpose to prevent confusion.



4. How to Make COBL App (Basic connection)

Designer ⑥ Change text

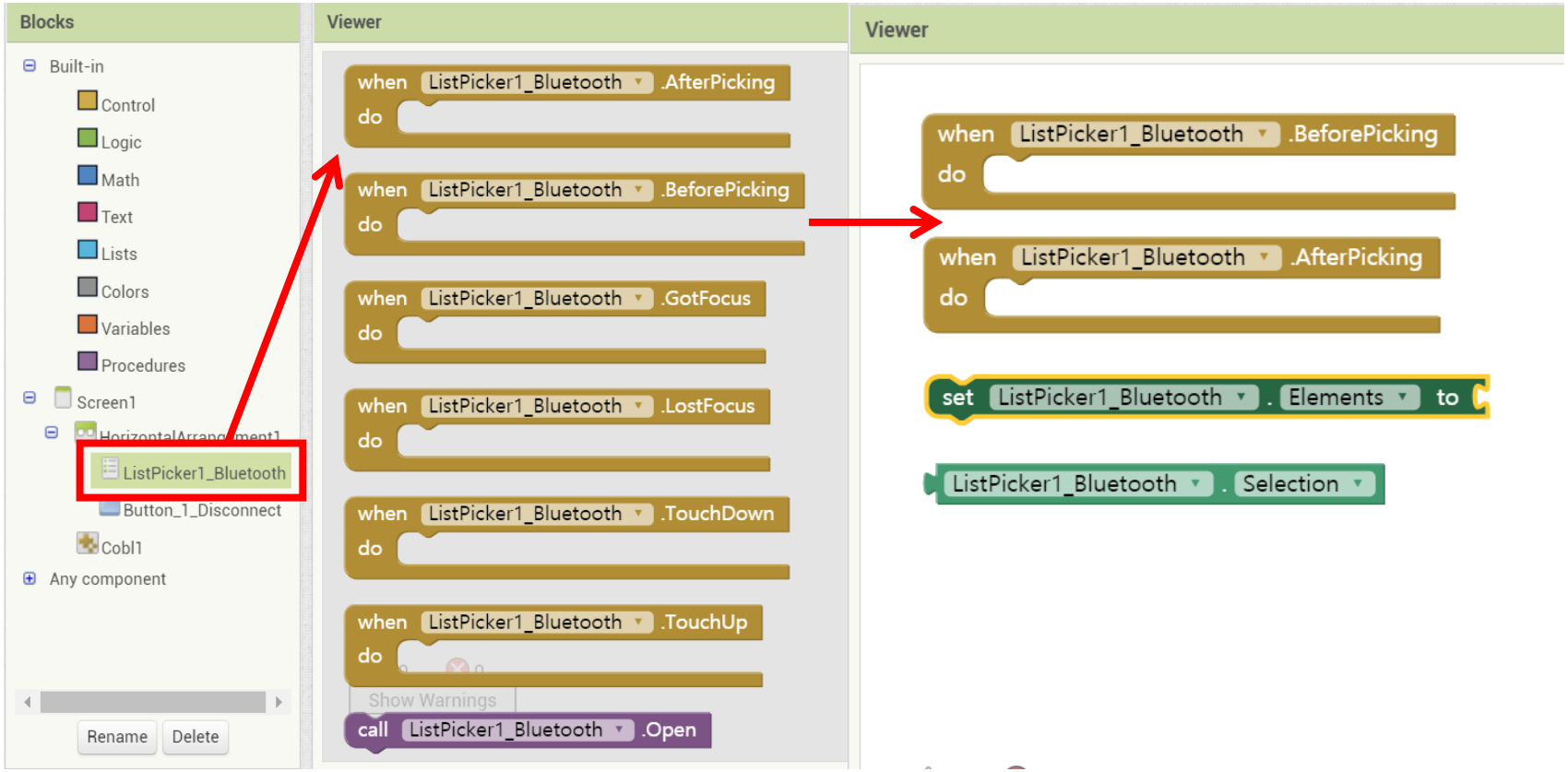
Change text on Listpicker and Button as '**Connect to board**'and '**Disconnect**'.



4. How to Make COBL App (Basic connection)

Coding ① List picker – load blocks

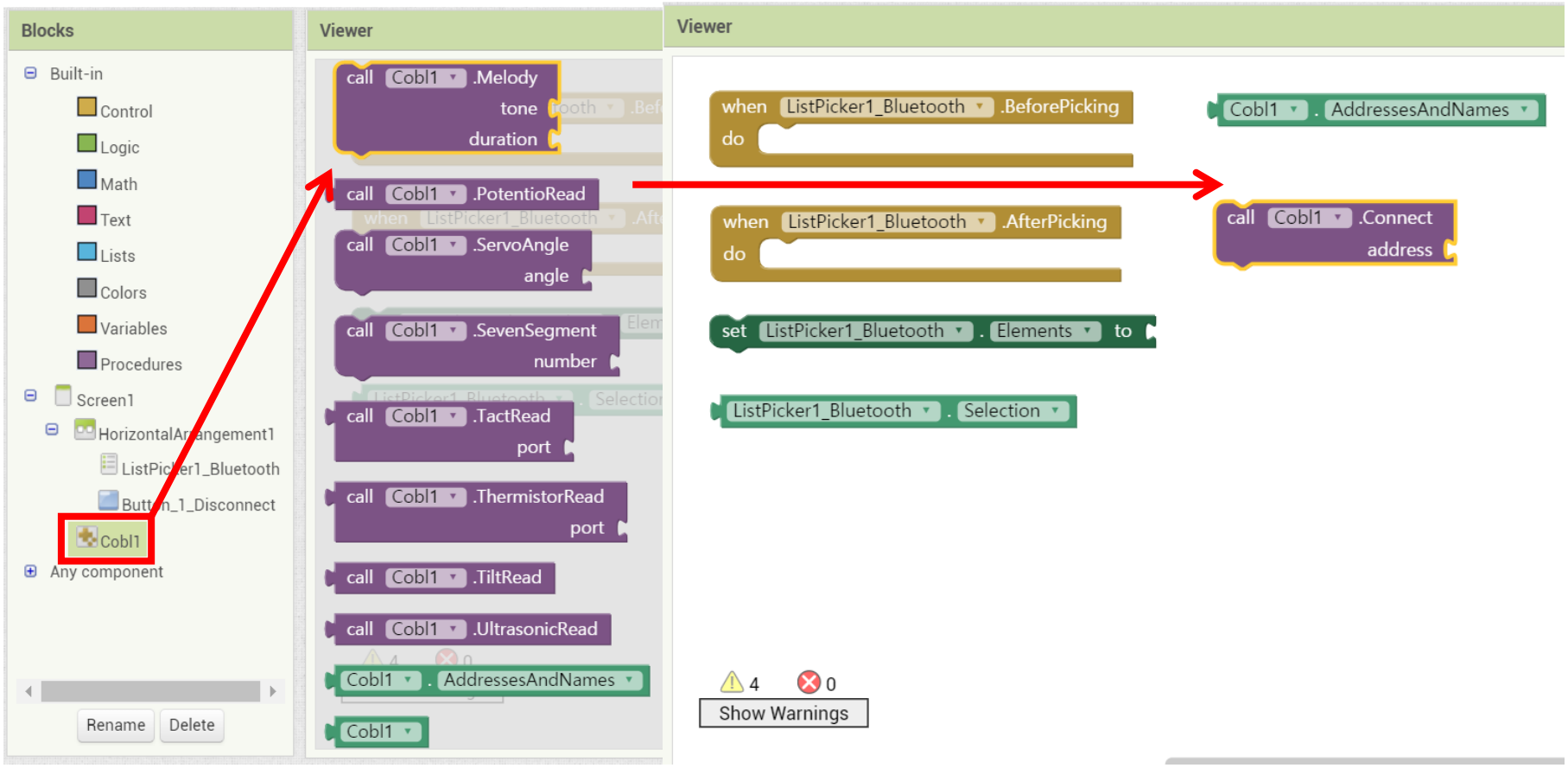
Drag below blocks from Bluetooth List picker.



4. How to Make COBL App (Basic connection)

Coding ② Load COBL – block

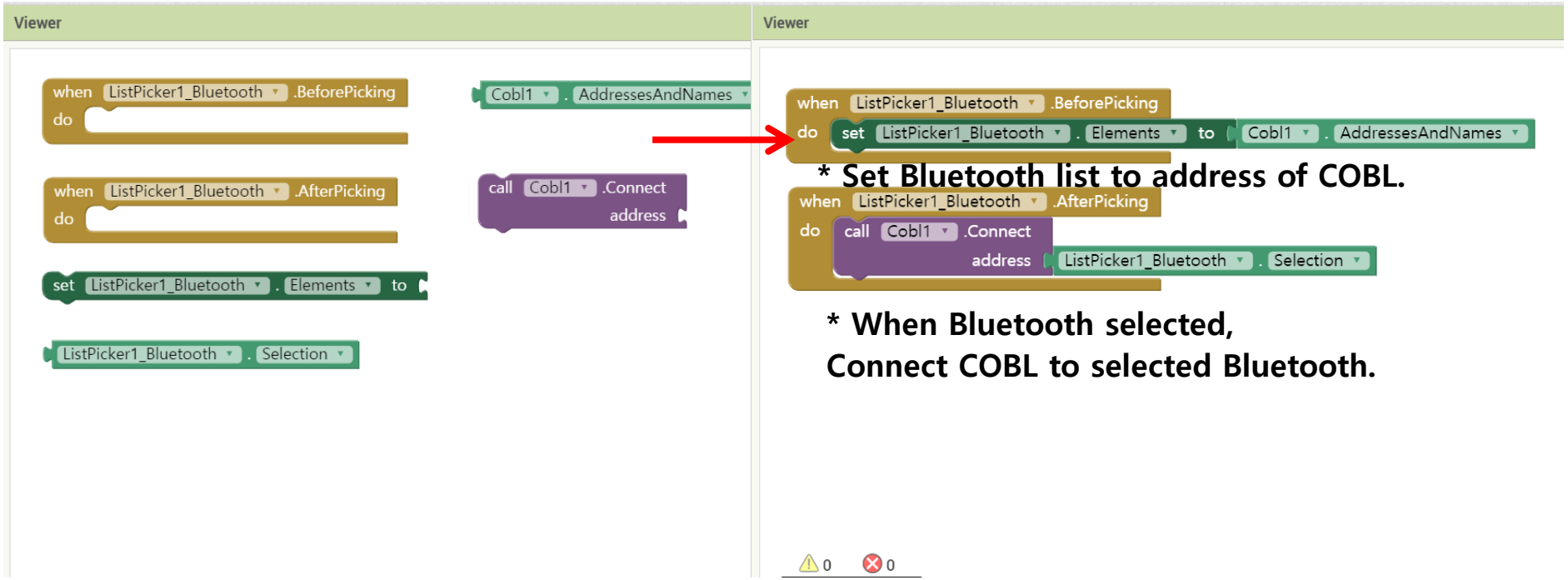
Drag below blocks from Cobl1.



4. How to Make COBL App (Basic connection)

Coding ③ Block assemble

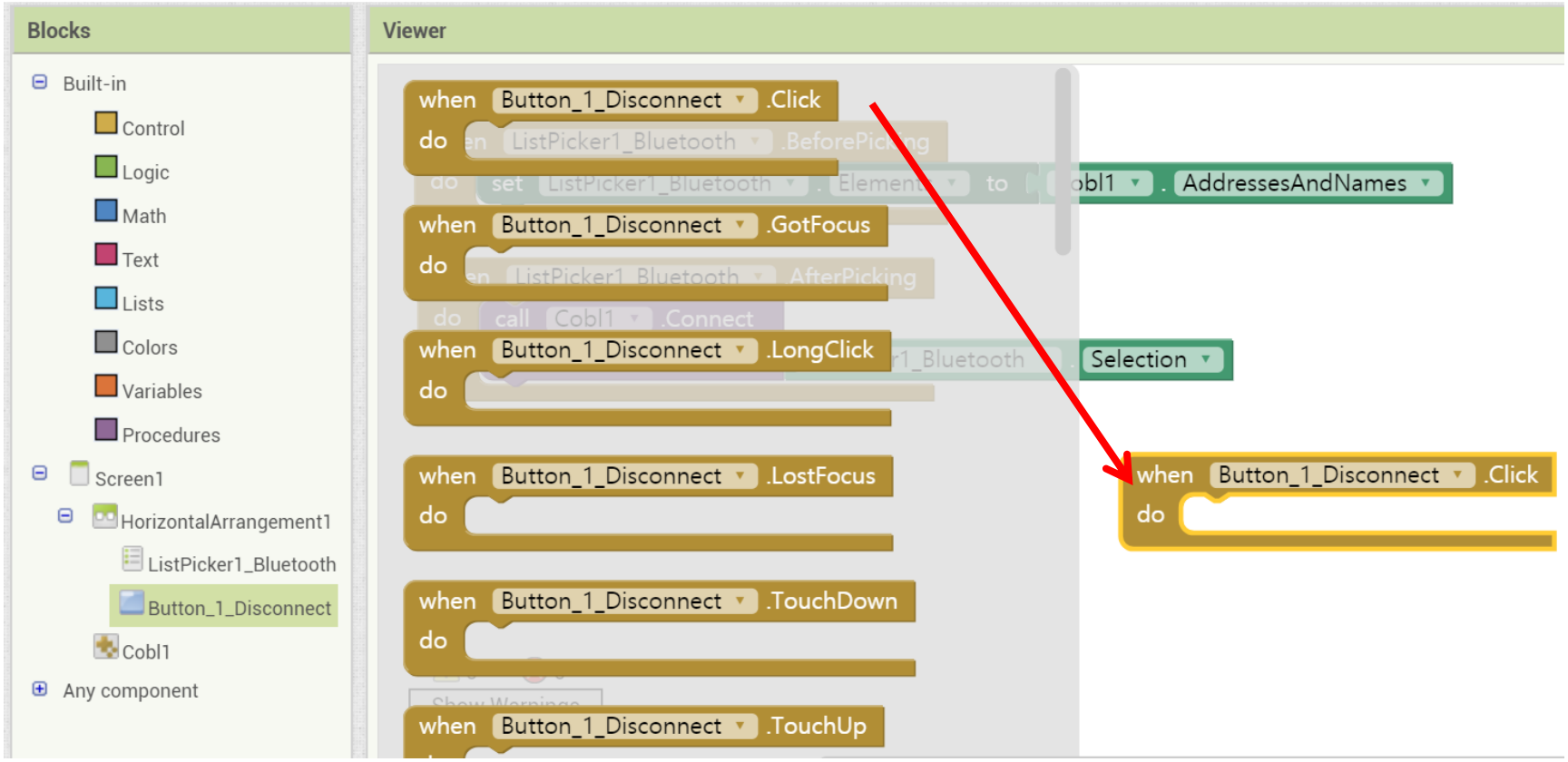
Assemble each block like right picture.



4. How to Make COBL App (Basic connection)

Coding ④ When 'Disconnect' button clicked

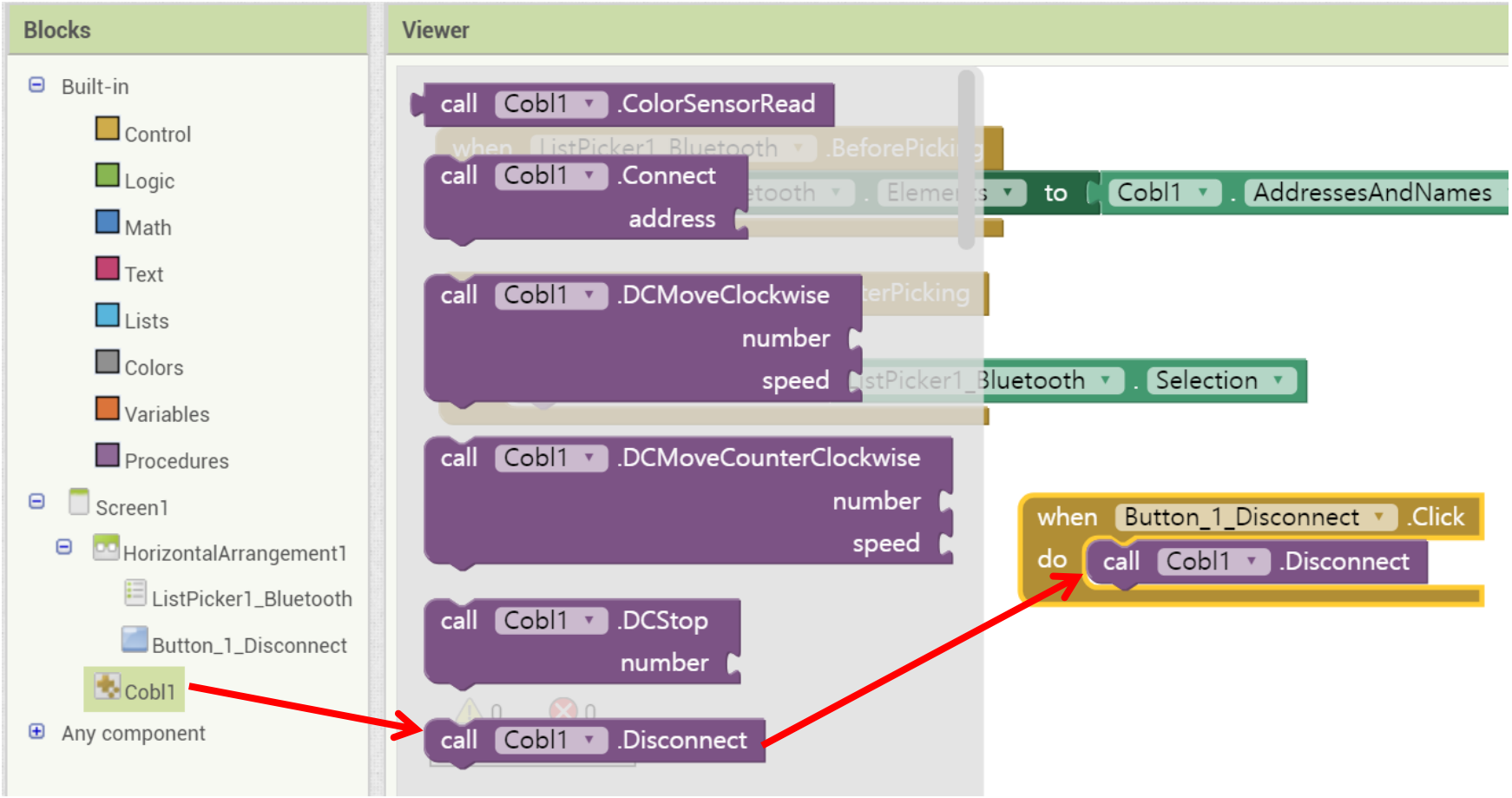
Drag 'When button clicked and do' block.



4. How to Make COBL App (Basic connection)

Coding ⑤ When 'Disconnect' button clicked

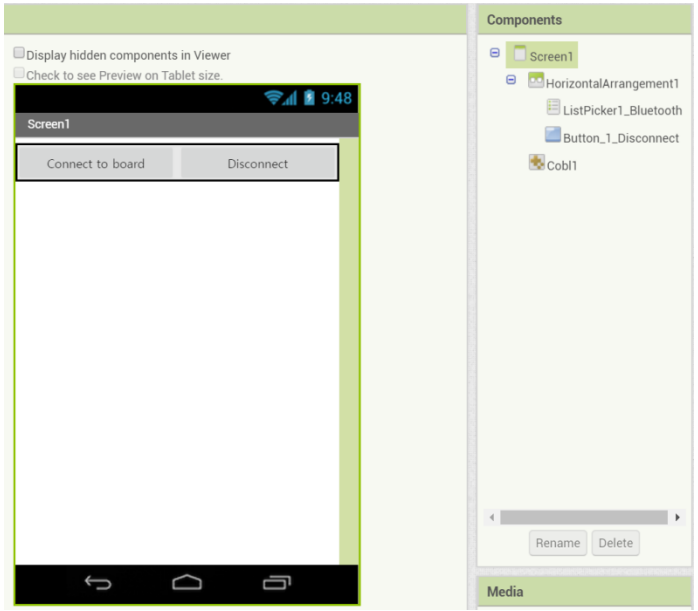
Assemble 'call Cobl1. Disconnect' with ④ block.



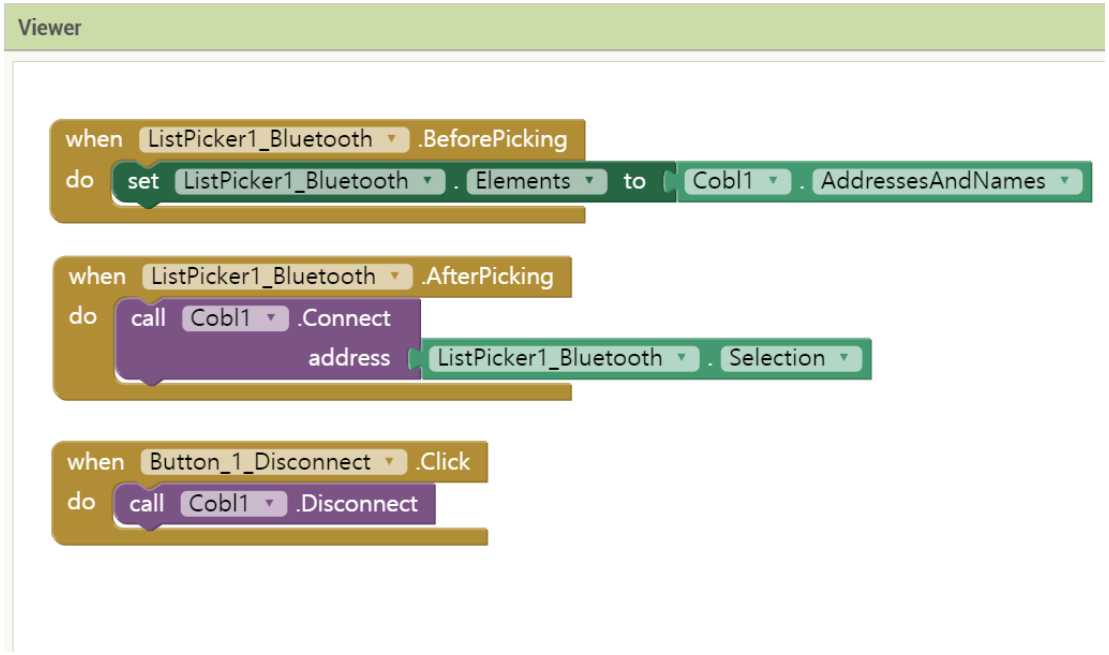
4. How to Make COBL App (Basic connection)

Conclusion: Connection COBL with Bluetooth

<Designer>



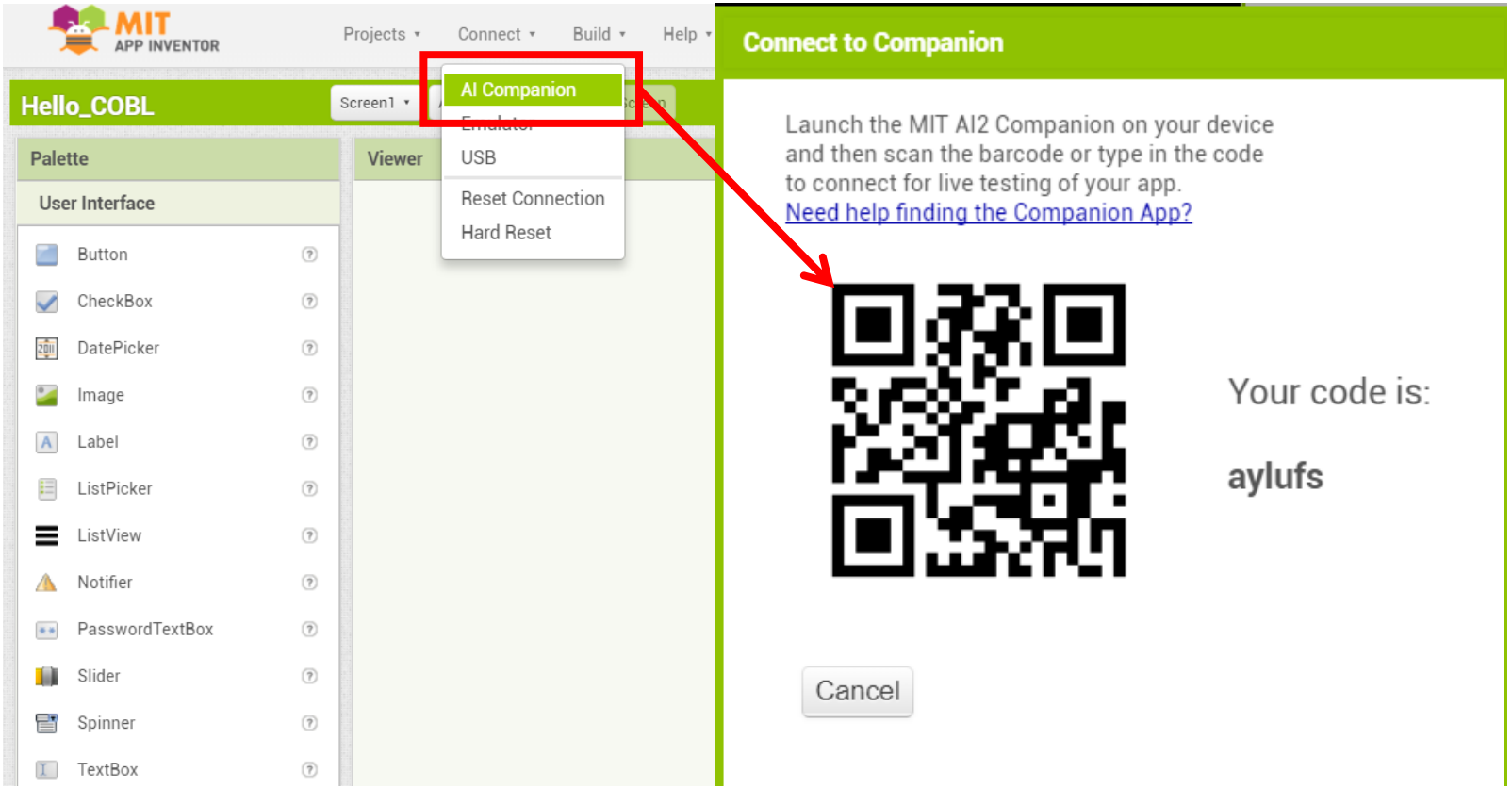
<Block Editor>



4. How to Make COBL App (Basic connection)

Connect to AI2 Companion

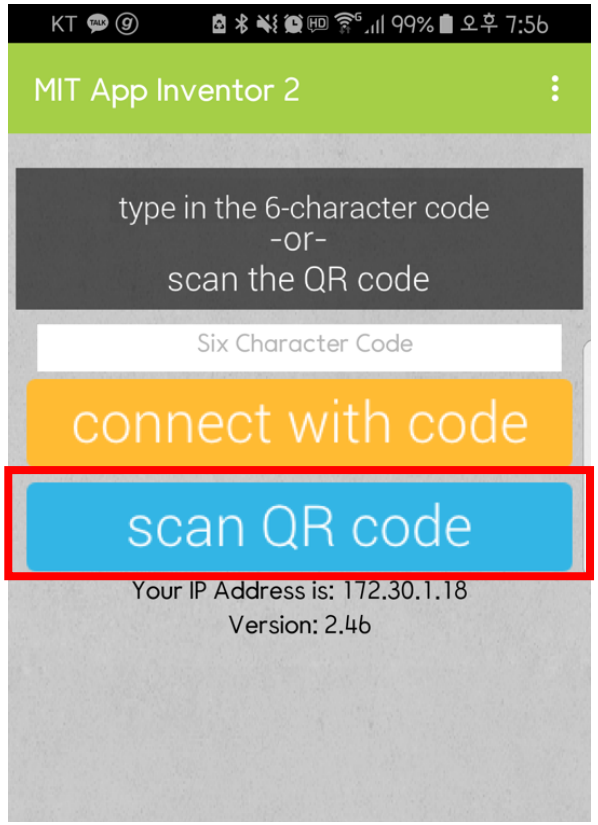
When click **AI Companion** on 'Connect' tap,
QR code for application connection is uploaded.

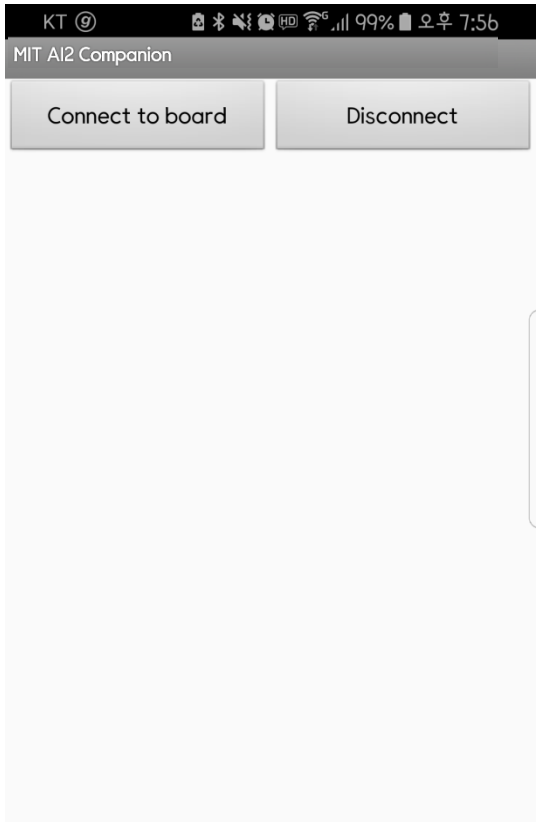


4. How to Make COBL App (Basic connection)

Connect to AI2 Companion

When scanning QR code with **MIT AI2 Companion**,
You can check the App at the same time.





* Both PC and Smartphone has to be connected with same wifi.

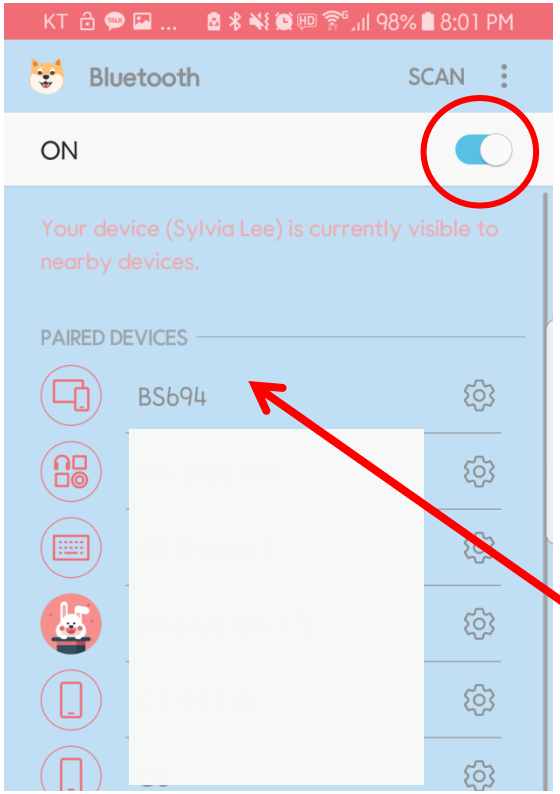
4. How to Make COBL App (Basic connection)

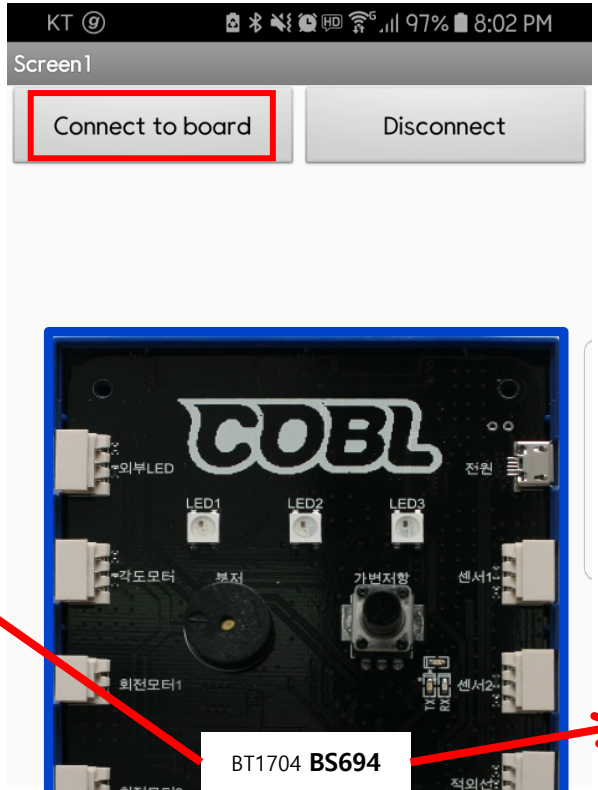
Connect to COBL Board with COBL App

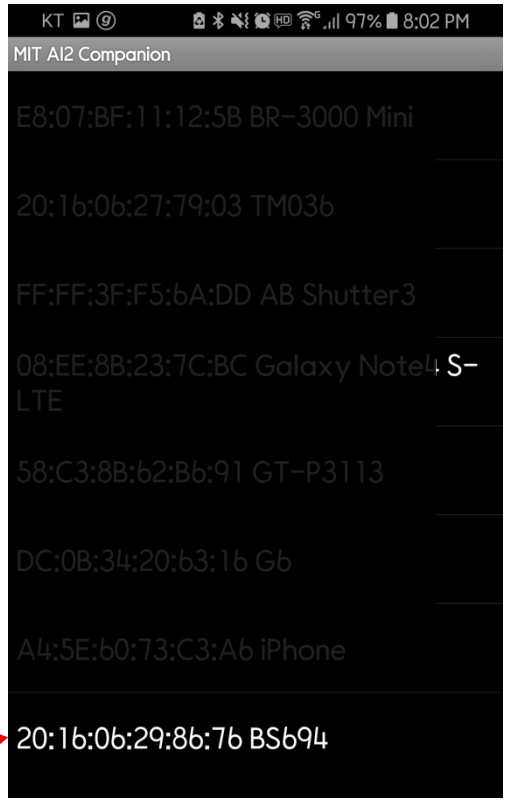
1) Bluetooth On

2) App – ‘Connect to Board’

3) Find serial number on board and connect.



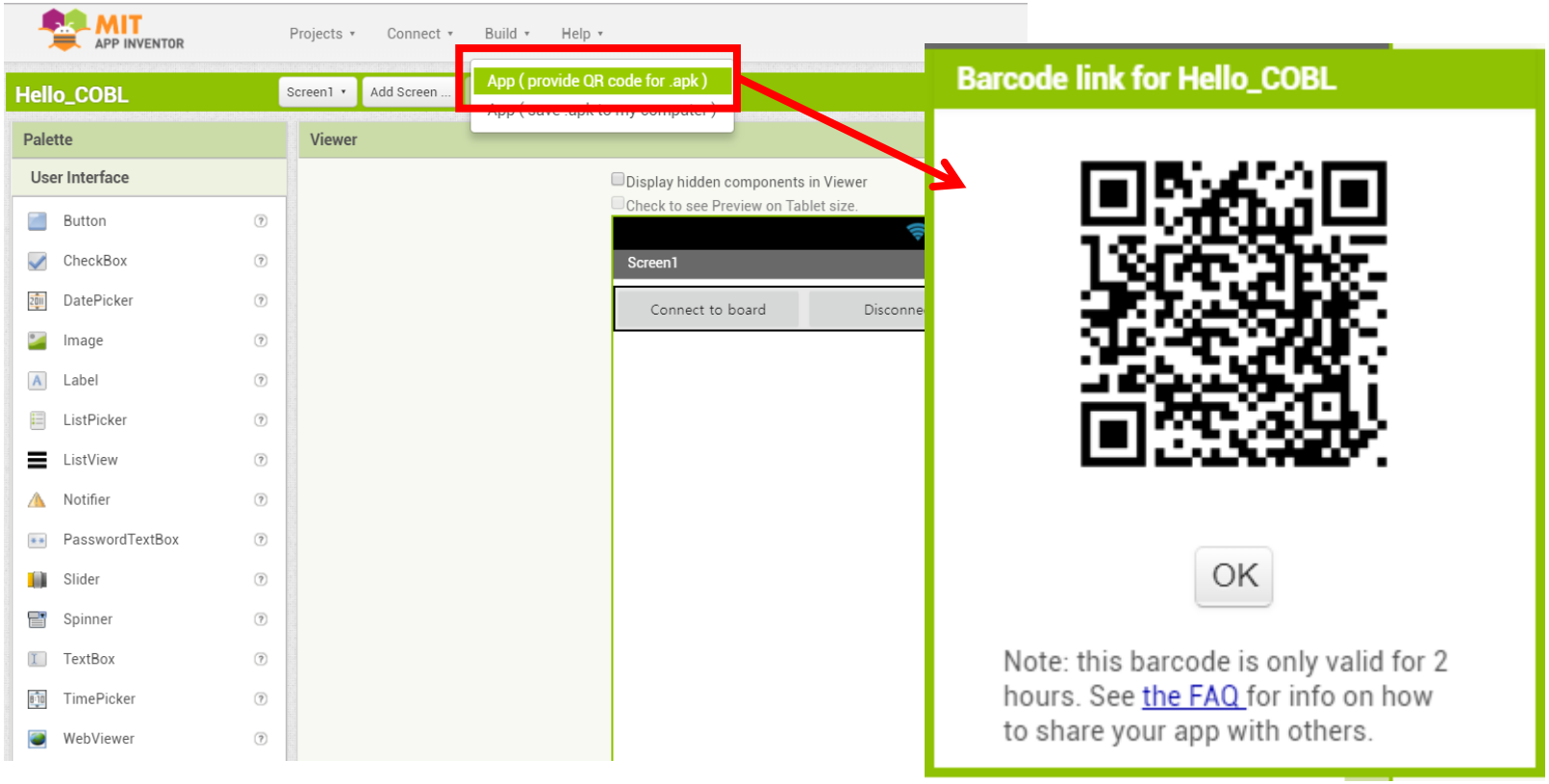




4. How to Make COBL App (Basic connection)

Download apk file

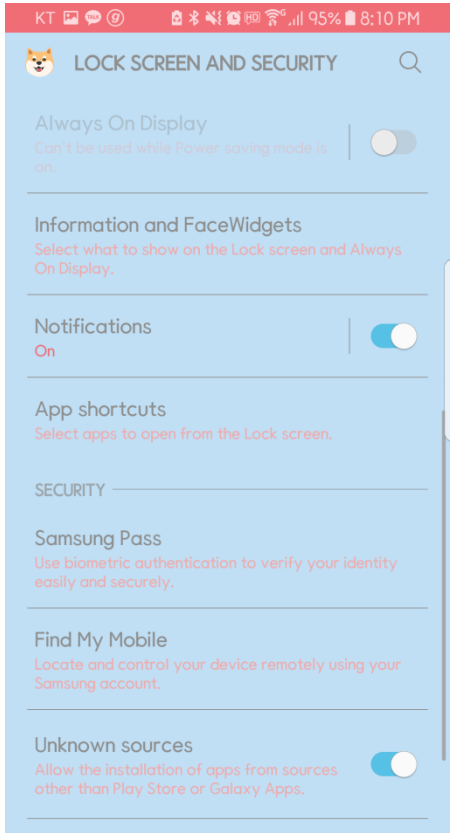
If App is done,
Click App (provide QR code for apk).
QR code connecting link is provided.

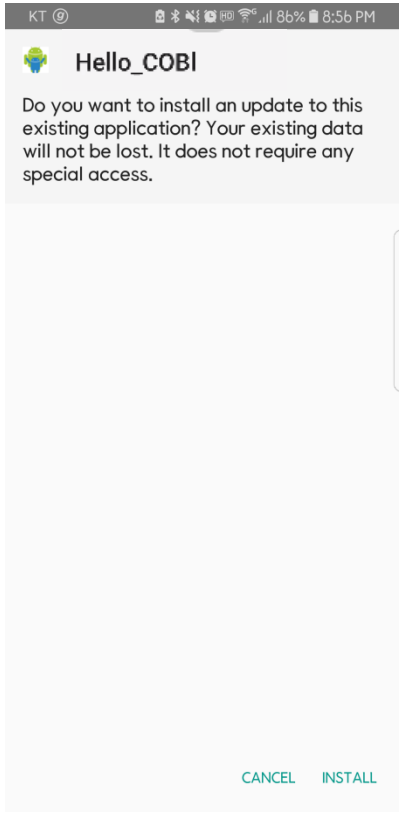


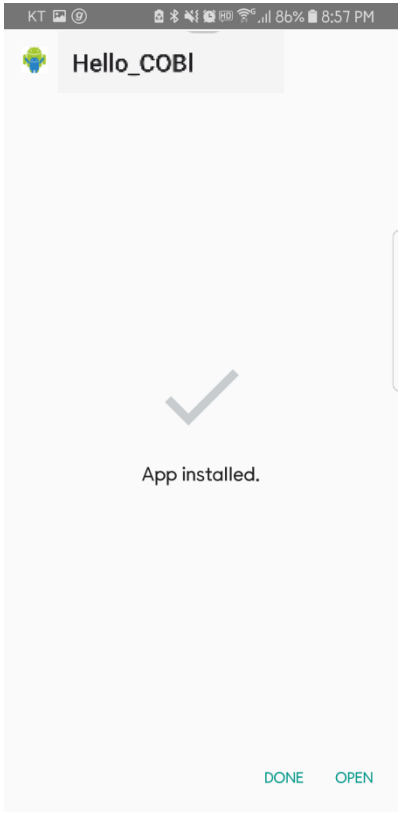
4. How to Make COBL App (Basic connection)

Download apk file

After downloading '**QR code Scanner**',
Apk file is downloaded when camera takes pictures to QR code.



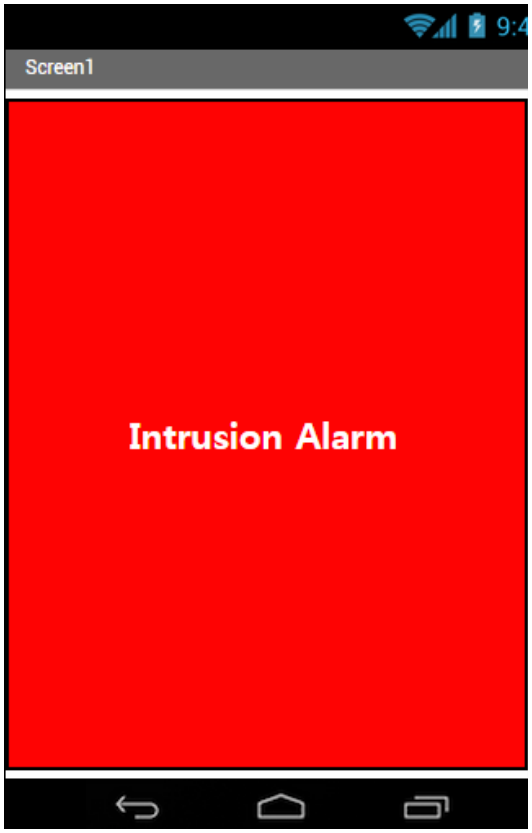




* Please allow installation of unknown sources of app.

5. Examples with COBL App

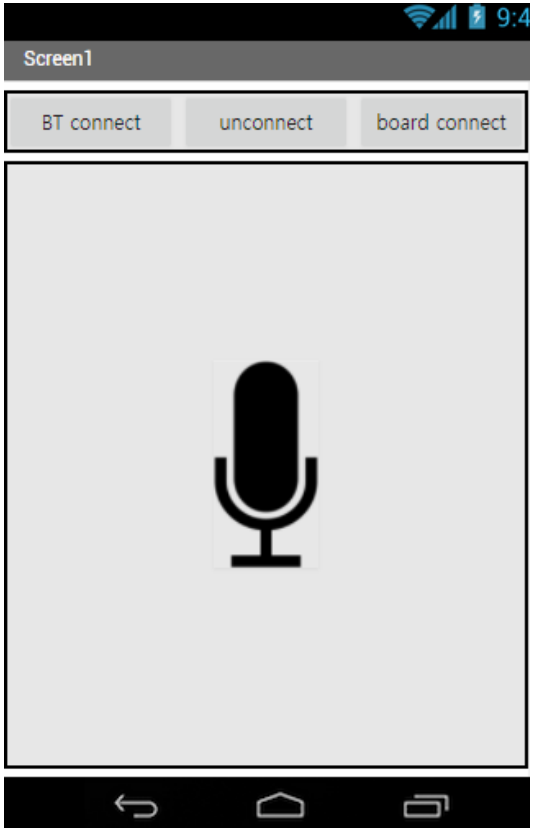
Intrusion Alarm



When ultrasonic sensor located nearby window detects intrusion,
'Intrusion Alarm' app rings alarm and send text to family member.

5. Examples with COBL App

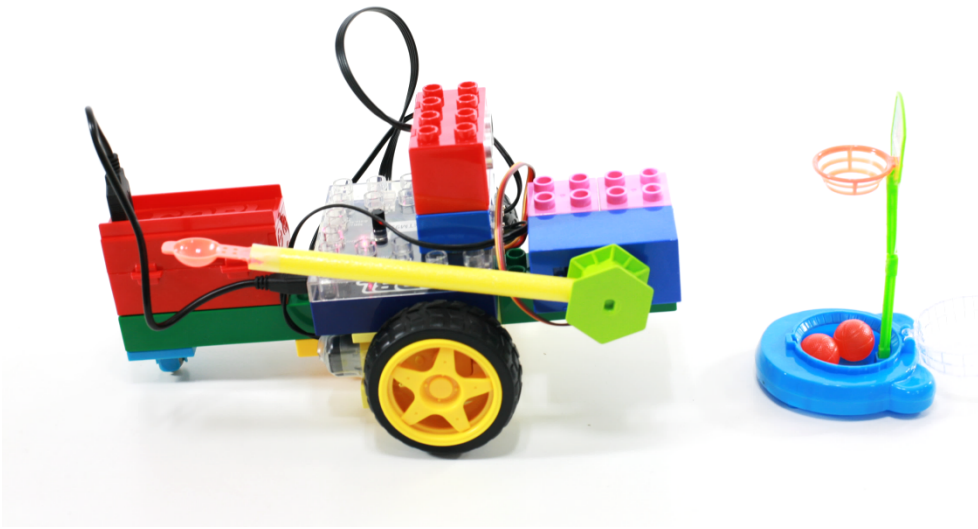
Voice remote controller



After pressing mic and telling ‘turn the light on’, ‘how is temperature’, and ‘turn the fan on’, the voice recognition remote controller recognizes the order and process the request.

5. Examples with COBL App

COBL Bot controller



COBL bot can be controlled with built-in gyro-sensor in smartphone by just controlling tilting your phone. When pressing ‘KICK’ button on screen, the bot can kick a ball.

Thank you