

# STEMCA CARROBOT REMOTE CONTROL

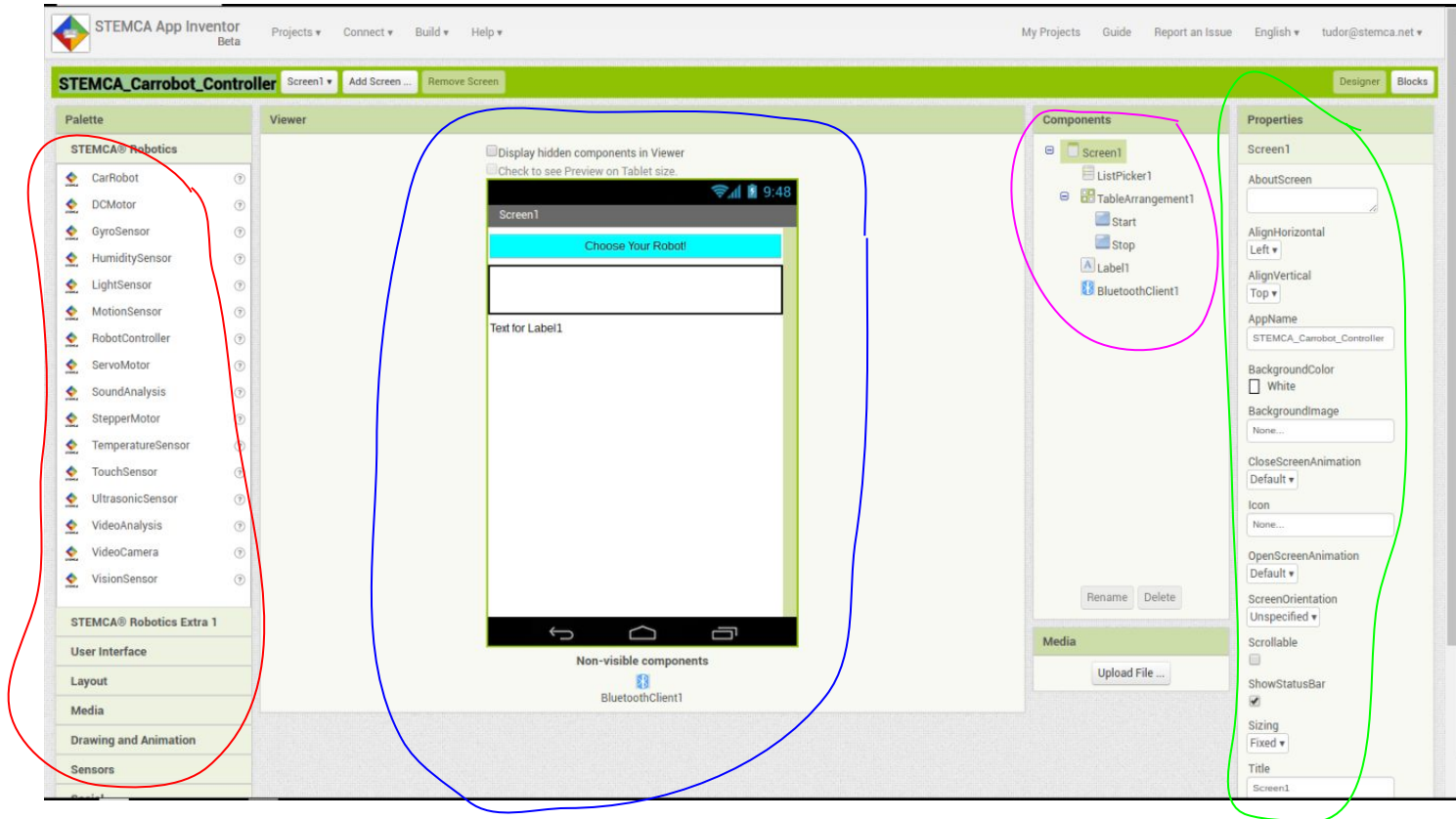
# INTRODUCTION:

The purpose of this presentation is to show how to build applications with STEMCA App Inventor available for free at [invent.stemca.com](https://invent.stemca.com).

There will be step by step instructions, complete with screenshots, to create applications.

We hope you will learn and enjoy. 😊

# DESIGNER PAGE:



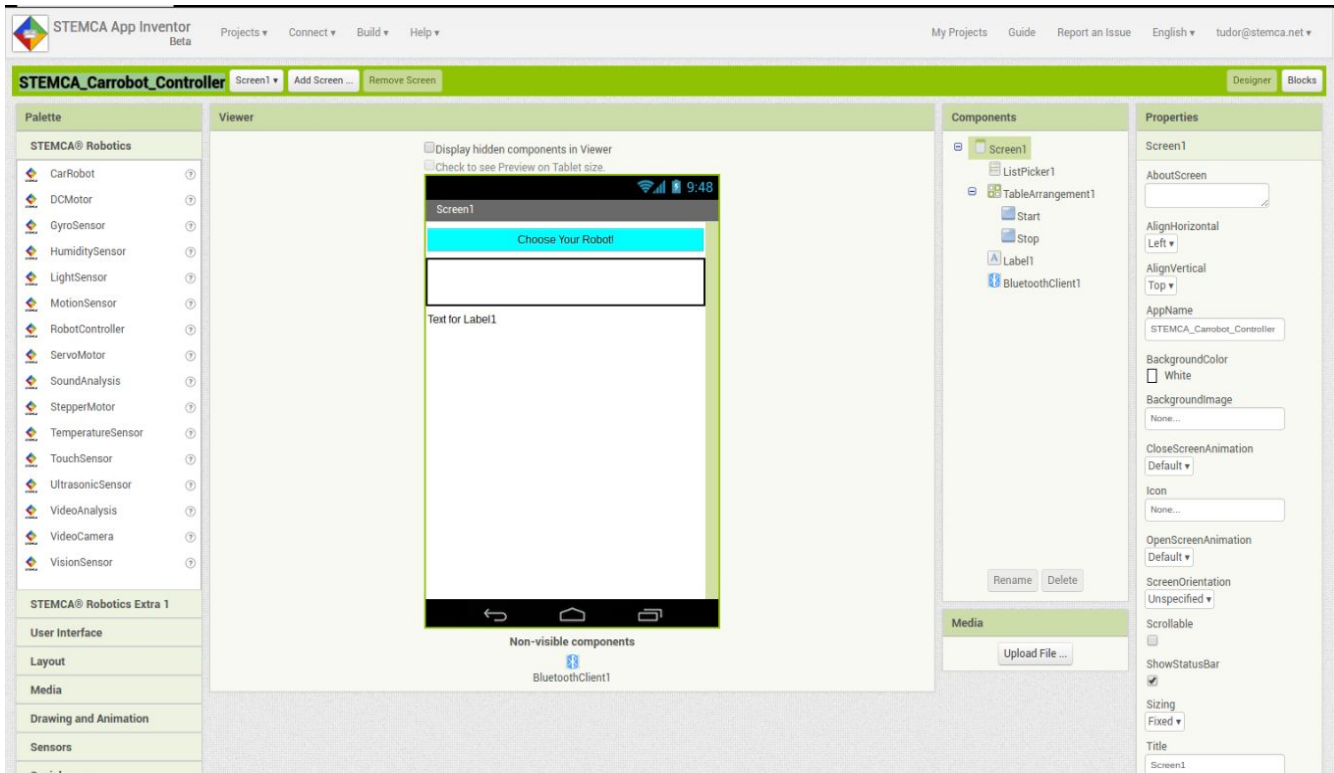
Designer page:

All the available predefined components are shown in the **Palette**.

The application UI components are designed in the **Viewer**.

The **Components** section is the designer space which shows the components included in the application in a tree format.

**The Properties** is the section of the design page where the components can be modified and customized (Ex.: place an image, select the measures of shapes, insert video, etc).



**Step 1:** Import the BT\_base from repository.

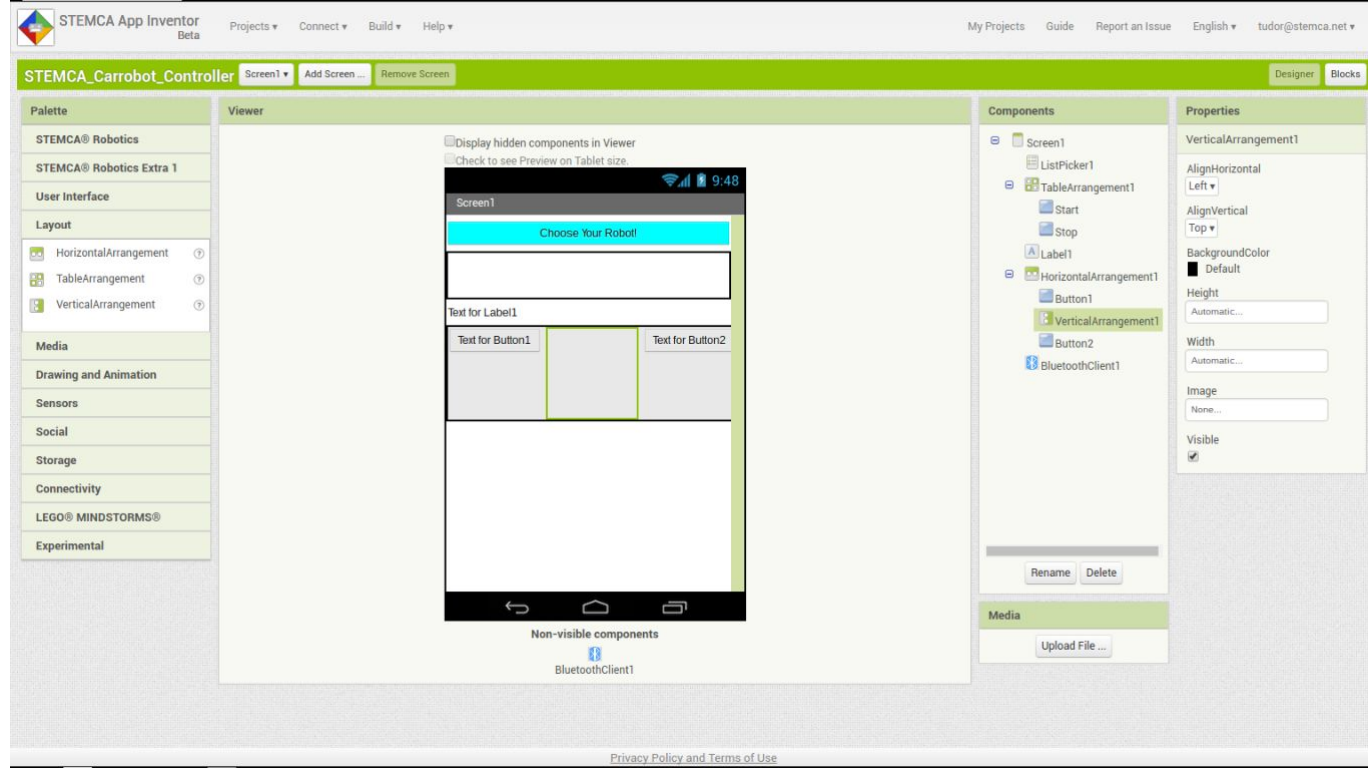
**Step 2:** Save project with the name of STEMCA\_CarRobot\_Controller.

**Step 3:** Change the app name to STEMCA\_CarRobot\_Controller and save your progress.

Step 4: Insert a table arrangement.

Step 5: Insert four buttons in the table arrangement.  
(up,down,left,right)

Step 6: Rename the buttons to up, down, left, right.



STEMCA\_Carrobot\_Controller

Screen1 Add Screen Remove Screen Designer Blocks

**Palette**

STEMCA® Robotics

- CarRobot
- DCMotor
- GyroSensor
- HumiditySensor
- LightSensor
- MotionSensor
- RobotController
- ServoMotor
- SoundAnalysis
- StepperMotor
- TemperatureSensor
- TouchSensor
- UltrasonicSensor
- VideoAnalysis
- VideoCamera
- VisionSensor

STEMCA® Robotics Extra 1

User Interface

Layout

Media

Drawing and Animation

Sensors

Social

Storage

Connectivity

**Viewer**

Display hidden components in Viewer

Check to see Preview on Tablet size

Screen1

Choose Your Robot!

Text for Label1

Text for Button1

Text for Button2

Text for Button3

Text for Button4

Non-visible components

BluetoothClient1 RobotController1 CarRobot1

**Components**

- Screen1
  - ListPicker1
  - TableArrangement1
    - Start
    - Stop
  - Label1
  - TableArrangement2
  - HorizontalArrangement1
    - Button2
    - Button3
  - TableArrangement3
    - Button4
  - BluetoothClient1
  - RobotController1
  - CarRobot1

Rename Delete

**Media**

Upload File ...

**Properties**

CarRobot1

DriveMotors

CB

StopBeforeDisconnect

WheelDiameter

4.32

Step 7: Insert the functionalities: CarRobot and RobotController.

Step 8:  
Connect  
carRobot to  
RobotControl.

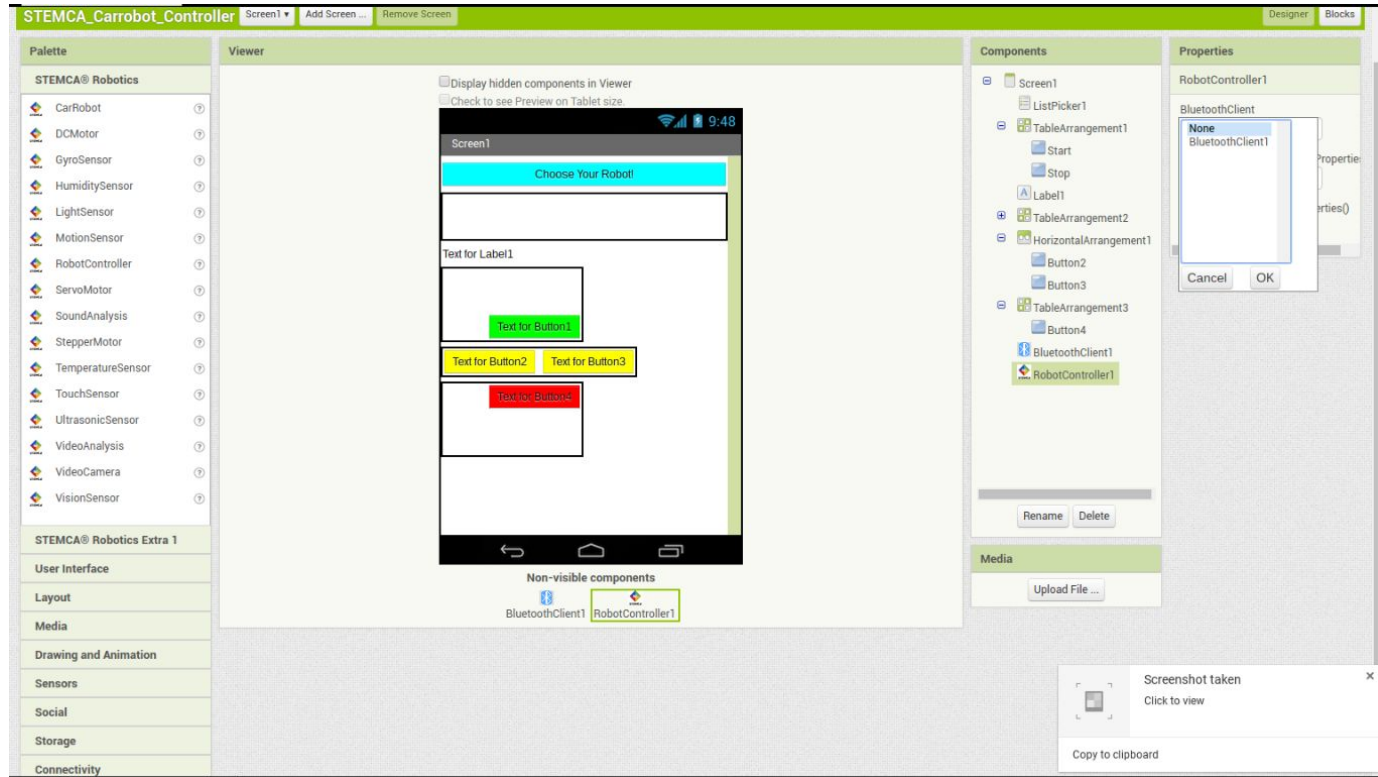
The screenshot displays the STEMCA\_Carrobot\_Controller software interface. The top bar includes the title "STEMCA\_Carrobot\_Controller" and buttons for "Screen1", "Add Screen...", and "Remove Screen". The interface is divided into several panels:

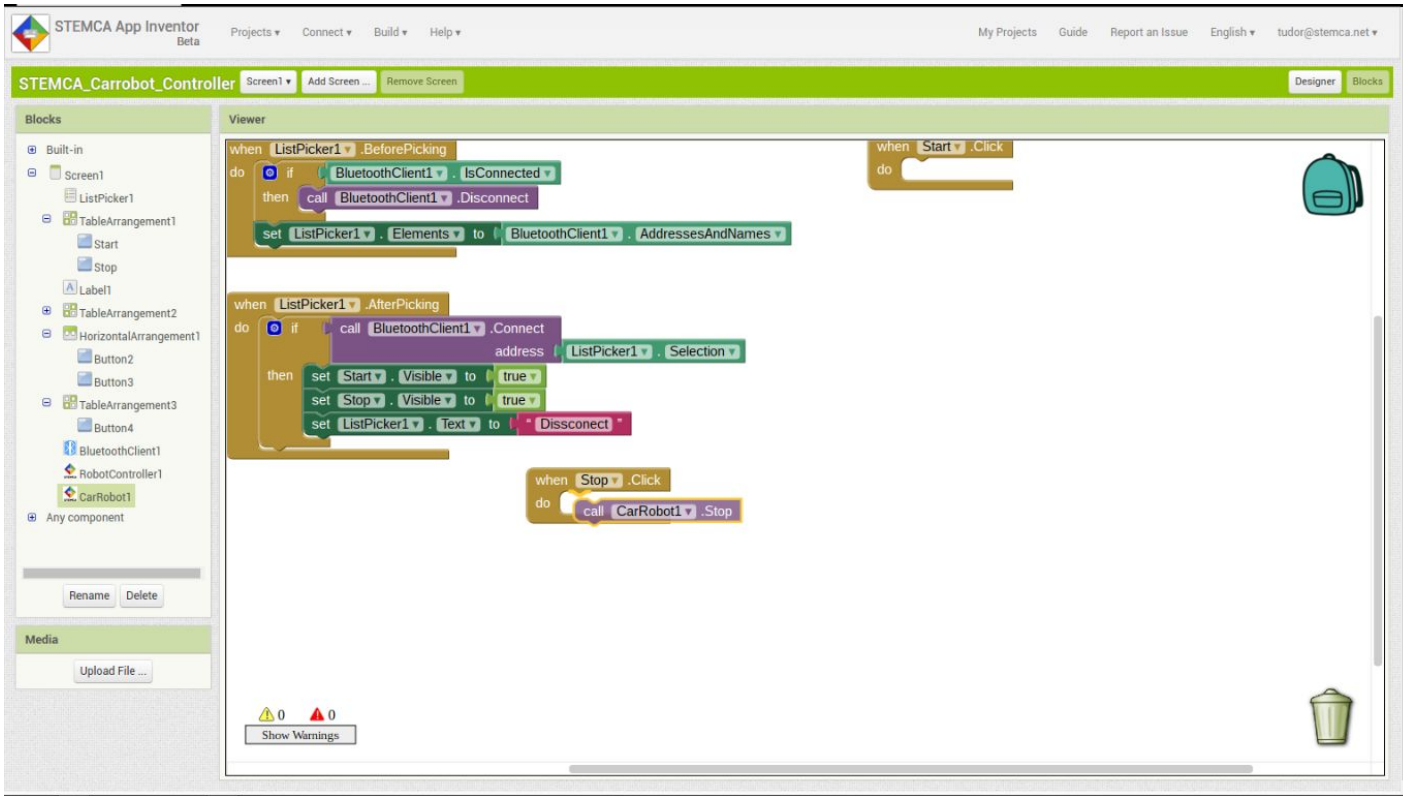
- Palette:** Lists various components under "STEMCA® Robotics" (CarRobot, DCMotor, GyroSensor, HumiditySensor, LightSensor, MotionSensor, RobotController, ServoMotor, SoundAnalysis, StepperMotor, TemperatureSensor, TouchSensor, UltrasonicSensor, VideoAnalysis, VideoCamera, VisionSensor) and "STEMCA® Robotics Extra 1" (User Interface, Layout, Media, Drawing and Animation, Sensors, Social, Storage, Connectivity).
- Viewer:** Shows a mobile app preview for "Screen1" with a "Choose Your Robot!" button and several text labels. Below the preview, "Non-visible components" are listed: BluetoothClient1, RobotController1 (highlighted with a green box), and CarRobot1.
- Components:** A tree view showing the hierarchy of components on the screen, including Screen1, ListPicker1, TableArrangement1, Start, Stop, Label1, TableArrangement2, HorizontalArrangement1, Button2, Button3, TableArrangement3, Button4, BluetoothClient1, RobotController1, and CarRobot1.
- Properties:** Displays the properties for the selected "RobotController1" component. The "ConnectedToSTEMCARobotProperty:" dropdown menu is open, showing "None" and "CarRobot1" (selected).

Buttons for "Rename" and "Delete" are located below the Components panel, and an "Upload File ..." button is in the Media section.



## Step 9: Connect Bluetooth to RobotController.





Step 10: Plug in the stop CarRobot in the stop button block.

# YOUR FINAL RESULT SHOULD LOOK LIKE THIS:

The screenshot displays the STEMCA App Inventor web interface. The top navigation bar includes links for Projects, Connect, Build, Help, My Projects, Guide, Report an Issue, English, and a user profile (tudor@stemca.net). The main workspace is titled "STEMCA\_Carrobot\_Controller" and shows a single screen named "Screen1".

**Blocks Panel:** The left sidebar contains a "Blocks" section with categories: Colors, Variables, Procedures, and Screen1. Under Screen1, there are components like ListPicker1, TableArrangement1, forward, Stop, Label1, TableArrangement2, HorizontalArrangement, left, right, TableArrangement3, backward, BluetoothClient1, RobotController1, and CarRobot1. A "Media" section at the bottom has an "Upload File ..." button.

**Viewer Panel:** The central area shows the visual representation of the code blocks. The code is organized into several event-driven blocks:

- when ListPicker1.BeforePicking**
  - do if BluetoothClient1.isConnected
  - then call BluetoothClient1.Disconnect
  - set ListPicker1.Elements to BluetoothClient1.AddressesAndNames
- when ListPicker1.AfterPicking**
  - do if call BluetoothClient1.Connect address ListPicker1.Selection
  - then set forward.Visible to true
  - set Stop.Visible to true
  - set ListPicker1.Text to "Disconnect"
- when forward.Click**
  - do call CarRobot1.MoveForwardIndefinitely power 70
- when backward.Click**
  - do call CarRobot1.MoveBackwardIndefinitely power 50
- when left.Click**
  - do call CarRobot1.TurnCounterClockwiseIndefinitely power 30
- when right.Click**
  - do call CarRobot1.TurnClockwiseIndefinitely power 30
- when Stop.Click**
  - do call CarRobot1.Stop

At the bottom left of the viewer, there are warning indicators (0 yellow triangles, 0 red triangles) and a "Show Warnings" button. A small trash can icon is located at the bottom right of the workspace.

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*That's all Folks!*

Good job, you have completed your application!