Create a web application based on .NET framework/Android (Based on Specialization Opted by student) App based and control multiple electrical device.

=>

Circuit diagram:

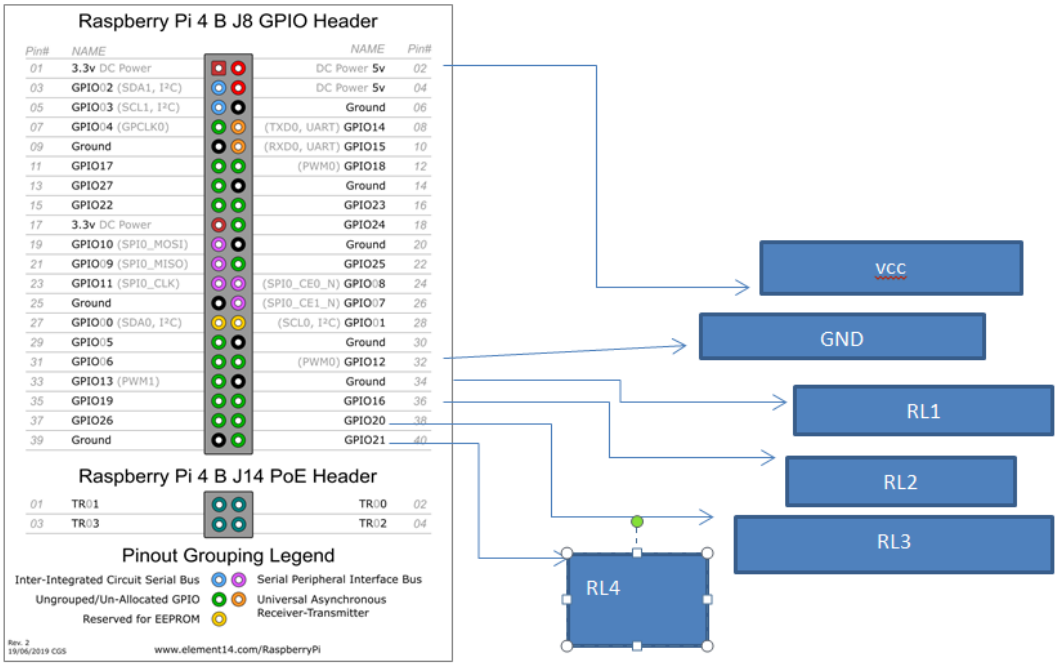
Attach pin to raspberry pi according to diagram

Pin no. 32-RL1

Pin no. 36-RL2

Pin no. 38-RL3

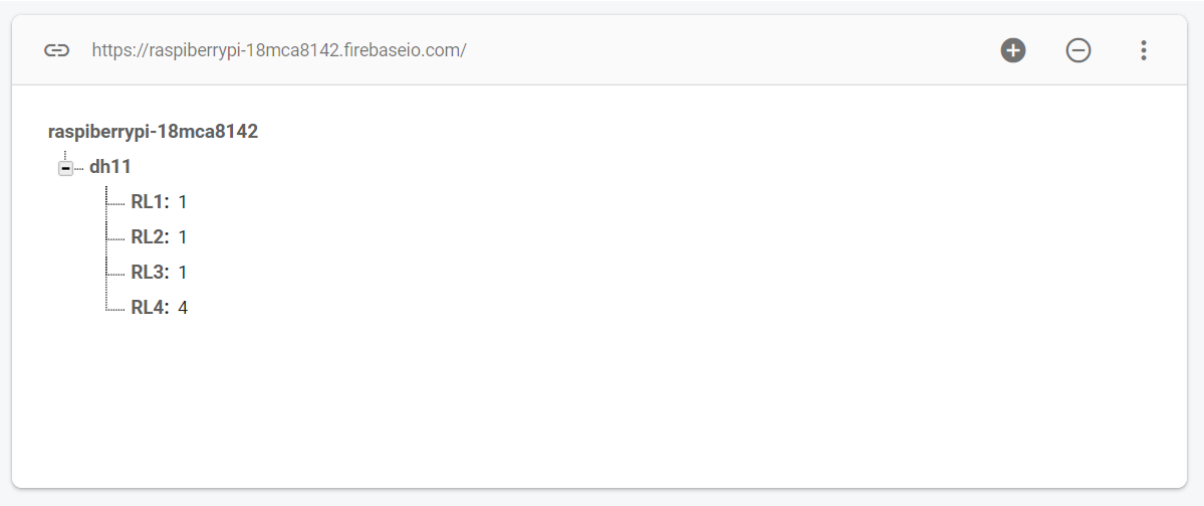
Pin no. 40-RL14



Python code:

```
Import RPi.GPIO  as GPIO
from firebase import firebase
GPIO.setmode(GPIO.BOARD)
GPIO.setup(32,GPIO.OUT)
GPIO.setup(36,GPIO.OUT)
GPIO.setup(38,GPIO.OUT)
GPIO.setup(40,GPIO.OUT)
firebase = firebase.FirebaseApplication('https://raspiberrypi-18mca8142.firebaseio.com/', None)
result = firebase.get('/dh11', None)
while(True):
      if(result[‘rl1’]==1):
          GPIO.output(32,GPIO.HIGH)
      else:
          GPIO.output(32,GPIO.LOW)
#RL2
      if(result[‘rl2’]==1):
          GPIO.output(36,GPIO.HIGH)
      else:
          GPIO.output(36,GPIO.LOW)
#RL3
      if(result[‘rl3’]==1):
          GPIO.output(38,GPIO.HIGH)
      else:
          GPIO.output(38,GPIO.LOW)
#RL4
      if(result[‘rl4’]==1):
          GPIO.output(40,GPIO.HIGH)
      else:
          GPIO.output(40,GPIO.LOW)
```

DATABASE DIAGRAM:



ANDROID CODE

Now we are going to make application in android studio:

Xml code:

```
<?xml version="1.0" encoding="utf-8"?>
<LinearLayout xmlns:android="http://schemas.android.com/apk/res/android"
    xmlns:app="http://schemas.android.com/apk/res-auto"
    xmlns:tools="http://schemas.android.com/tools"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    tools:context=".MainActivity"
    android:orientation="vertical">


    <Switch
        android:id="@+id/RL1"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:text="RL1" />
    <Switch
        android:id="@+id/RL2"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:text="RL2" />
    <Switch
        android:id="@+id/RL3"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:text="RL3" />
    <Switch
        android:id="@+id/RL4"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:text="RL4" />
```

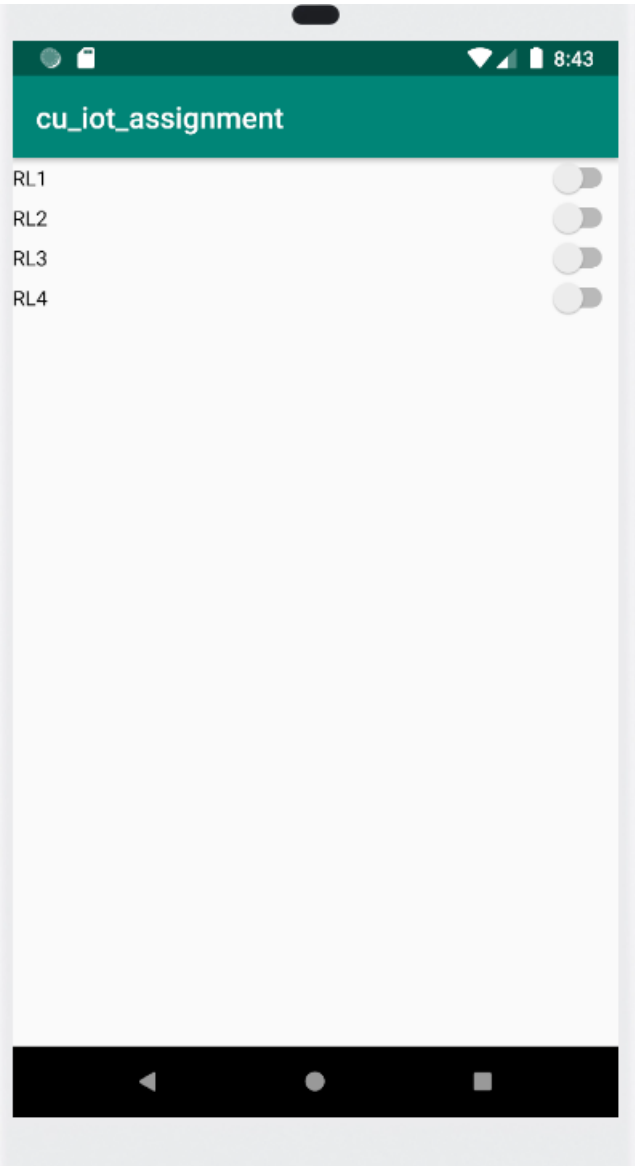
```
    <TextView
        android:layout_width="match_parent"
        android:layout_height="100dp"
        android:text="rajeev singh 18mca8142"

        />
</LinearLayout>
```

Mainactivity.java

```
package com.example.cu_iot_assignment;

import androidx.appcompat.app.AppCompatActivity;

import android.os.Bundle;
import android.view.View;
import android.widget.Switch;

import com.google.firebase.database.DatabaseReference;
import com.google.firebase.database.FirebaseDatabase;

public class MainActivity extends AppCompatActivity {
    Switch rl1,rl2,rl3,rl4;

    private FirebaseDatabase database;
    private DatabaseReference databaseReference;
    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);
        rl1=findViewById(R.id.RL1);
        rl2=findViewById(R.id.RL2);
        rl3=findViewById(R.id.RL3);
        rl4=findViewById(R.id.RL4);
        rl1.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(View v) {
                database = FirebaseDatabase.getInstance();
                databaseReference = database.getReference("dh11");
                if(rl1.isChecked()) {

                    databaseReference.child("RL1").setValue(1);
                }
                else
                {
                    databaseReference.child("RL1").setValue(0);
                }

            }
        });
        rl2.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(View v) {
                database = FirebaseDatabase.getInstance();
                databaseReference = database.getReference("dh11");
                if(rl1.isChecked()) {

                    databaseReference.child("RL2").setValue(1);
                }
                else
                {
                    databaseReference.child("RL2").setValue(0);
                }

            }
        });
        rl3.setOnClickListener(new View.OnClickListener() {
```

```
            @Override
            public void onClick(View v) {
                database = FirebaseDatabase.getInstance();
                databaseReference = database.getReference("dh11");
                if(rl1.isChecked()) {

                    databaseReference.child("RL3").setValue(1);
                }
                else
                {
                    databaseReference.child("RL3").setValue(0);
                }

            }
        });
        rl4.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(View v) {
                database = FirebaseDatabase.getInstance();
                databaseReference = database.getReference("dh11");
                if(rl1.isChecked()) {

                    databaseReference.child("RL4").setValue(1);
                }
                else
                {
                    databaseReference.child("RL4").setValue(0);
                }

            }
        });
    }
}
```

Diagram:


8:43
cu_iot_assignment
RL1
RL2
RL3
RL4