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**WIRELESS CONTROL OF A GROUND VEHICLE USING INTERNET AND GESTURES**

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CS G523 - Software for Embedded system

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**Purpose of the files included:-**

* **Folder with name Gesturecontrolcode:**

This folder contains the entire code for the Android Application which is used for gesture control of vehicle. This folder contain two Important files(JAVA classes)

**HomeScreen:-**

* Contains code for the UI which is visible when we open the application . It has buttons like Connect, Search and the action listeners for the onClick event.
* Discover devices which have been paired through bluetooth on the phone using a private class MyAdapter.
* Get BlueToothAdapter object which is needed for all bluetooth related tasks

**MainActivity:-**

* This class comes into picture once the device is paired to the Bluetooth module on the robot. It implements the Android SensorEventListener interface.
* Accelerometer data is obtained when the OnSensorChanged Event occurs.
* Using an algorithm and the input data obtained, the orientation of the device is computed and the direction of movement of vehicle is decided. If this is different from the previous direction then the command is sent to the Arduino through the outputStream of BluetoothSocket.

There are some more files which are not so important and I have already added comments to those files to improve the readability.

* **Folder named Internetcontrolode**
* **WebController**:- Contains set of webpages developed in HTML,CSS and Javascript to send data(commands) to a web server. There are two webPages :- first webpage is hosted on [t27.github.io/iot/](http://www.t27.github.io/iot/play.HTML?devicename=bitspilani) When user enters the correct device name, website is redirected to another web-page which contains buttons used to send commands to the vehicle. It contains JavaScript code handling web requests and for listening to click and keypress events and Bootstrap CSS for making the buttons and UI of the webpage.
* **Rasberry-Pi receiver**:- This Python code is executed on the Rasberry-Pi and is used for sending the request to the dweet.io server at regular interval to obtain the latest command. For a headless Raspberry Pi(without a display) you can edit the /etc/rc.local file to execute this script by default

**How to use the files given**:

* Android App Files
  + To run Android application download Android ADT bundle form link: <http://developer.android.com/sdk/index.html?hl=sk>
  + Go to Android SDK manager and download emulator ,android SDK platform and some other default utilities.
  + After u have downloaded and installed, Now import the project Blue\_tilt .Press ctrl+F11 to run the application ,if everything is correct it will run the application successfully in the emulator. U can export the project to generate .apk file which can be used to run the app on your mobile.
* Internet Control Files
* Host the webpages on any free webhosting sites using code in folder jssender. We hosted webPages on github. Store code stored in pyreciever on rabserry pi.
* Make sure that all the Libraries imported in the code are already installed.
* The main one is python-requests which can be installed through “pip”.

**How to use the application**

Videos are recorded which shows the use of the application. Do refer to the included videos.

**How to deploy the application**

* Deployment in case of android application is very easy. Right click on your project and click Android Tools -> Export Signed Application Package or Export Unsigned Application Package. Now .apk file will be generated which you can transfer to mobile and run the app
* In case of internet , host webpage on gitHub, webserver on dweet.io and store receiver code on raspberrypi .

For any additional help or support:

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