**EXECUTION DETAILS BATCH-09**

**Project Title**: **Voice-Driven Intelligence on Wheels: A Speech-Based Smart Vehicle Powered by IoT**

1. **Connect Raspberry pi and the laptop to the same network.**
2. **Open VNC Server and enter IP address of Raspberry PI.**
3. **User name= pi**
4. **Password= pi**

**Step 1: Create the python virtual environment in Raspberry Pi OS**

**python -m venv project**

**Step 2: Activate virtual environment**

**Source bin/activate**

**Step 3: Installing all the required libraries by using pip command**

**Libraries: tensorflow,librosa,jupyternotebook,numpy,pandas,gpiozero,GPIO**

**EX: pip intall tensorflow, etc**

**Step 4: configuring raspberry pi pins**

|  |  |
| --- | --- |
| **COMPONENT** | **GPIO PIN** |
| MOTOR | Right Forward=18, Right Backward=17  Left Forward=23, Left Backward=22 |
| Ultrasonic Sensor | Echo=27, Trigger=24 |
| LED | Front right=2, Front Left=3  Back right=19, Back Left=26 |
| Sensor | 21 |
| Buzzer | 10 |

**Step 5: run python code “car1.py”**

**Python car1.py**

**Step 6: After running code give voice input like turn right, turn left, stop, reverse, lights on, lights off, go forward, blow horn, speed up, slow down**

**Step 7: Gesture control operations in key board**

|  |  |
| --- | --- |
| **Go forward** | **Up arrow key** |
| **Reverse** | **Down arrow key** |
| **Stop** | **Release the Key** |
| **Turn Left** | **Left arrow key** |
| **Turn right** | **Right arow key** |
| **Blow horn** | **Key “b” or “B”** |
| **Lights on** | **Key “l” or “L”** |
| **Lights off** | **Release key** |
| **Speed up** | **Key “u” or “U”** |
| **Slow down** | **Key “d” or “B”** |

**Step 8: press ctrl+c to stop executing the code**