Wireless Setup of the Raspberry Pi and MATLAB Environment

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A convenient way to prepare the Raspberry Pi for data acquisition with MATLAB is to establish a wireless connection through a mobile-phone hotspot. In this configuration, both the host computer and the Raspberry Pi connect to the same wireless network generated by the phone. This avoids the need for a wired LAN connection and provides a simple portable setup for experimentation.

1.1 Connecting the Host Computer and Raspberry Pi to the Same Network

The first step is to activate the hotspot function on the mobile phone. Once the hotspot is active, the host computer should be connected to this wireless network in the usual way through the operating system's Wi-Fi settings.

After the host computer has joined the hotspot network, the Raspberry Pi should also be connected to the same network. Using the Raspberry Pi monitor, open the wireless network settings and enable the wireless LAN interface if it is not already active. The list of available wireless networks should then appear, including the mobile-phone hotspot. Select the hotspot and connect the Raspberry Pi to it.

At this stage, both the computer and the Raspberry Pi are attached to the same wireless network, which makes direct communication between them possible.

1.2 Opening the MATLAB Support Package Setup

If the *MATLAB Support Package for Raspberry Pi Hardware* has already been installed, it can be accessed from the installed add-ons or support packages within MATLAB. The corresponding entry should be located in the installed tools list. From there, the setup or configuration window can be opened by selecting the appropriate menu option, typically available through the three-dot menu associated with the installed support package.

This setup utility is the main interface through which MATLAB establishes communication with the Raspberry Pi.

1.3 Obtaining the Raspberry Pi IP Address

In order for MATLAB to communicate with the Raspberry Pi over the wireless network, the current IP address of the Raspberry Pi must be identified.

Using the Raspberry Pi monitor, open a terminal window and type the following command:

```
hostname -I
```

This command displays the IP address currently assigned to the Raspberry Pi on the wireless network. The displayed address should be noted carefully, since it will be needed in the MATLAB setup window and in the MATLAB script.

1.4 Entering the Device Information in MATLAB

Return to the MATLAB setup utility for the Raspberry Pi support package. In the field labeled *Device address*, enter the IP address obtained from the Raspberry Pi terminal.

The remaining required fields, such as the device name, username, and password, should then be completed using the Raspberry Pi credentials. Once these details have been entered, the connection can be tested directly from the setup window.

If the network configuration and credentials are correct, the test should complete successfully and the status indicators should appear in green. This confirms that MATLAB can reach and authenticate with the Raspberry Pi over the wireless network.

1.5 Completing the Setup Procedure

After a successful connection test, proceed through the remaining setup screens by selecting *Next* until the configuration process is complete. At the end of the procedure, MATLAB typically offers two options: *Reboot now* or *Reboot later*. In this configuration, it is preferable to select *Reboot now* so that the Raspberry Pi restarts immediately and the support package configuration is fully applied.

Once the Raspberry Pi has rebooted, the wireless MATLAB–Raspberry Pi environment is ready for use.

1.6 Using the Same IP Address in the MATLAB Script

After the support package has been configured, the same Raspberry Pi IP address should also be used in the MATLAB code whenever the script requires explicit communication with the device. In other words, the IP address identified with the `hostname -I` command becomes the reference address for both the setup stage and the subsequent programming stage.

This ensures consistency between the configured device in MATLAB and the actual Raspberry Pi available on the wireless network.

1.7 Practical Remark

This wireless configuration is especially useful when portability and simplicity are important. Since both devices communicate through the same hotspot, the system can be set up quickly in environments where no dedicated router or Ethernet connection is available. The essential requirement is only that the computer and the Raspberry Pi remain connected to the same wireless hotspot throughout the configuration and execution stages.