

GR-MANGO

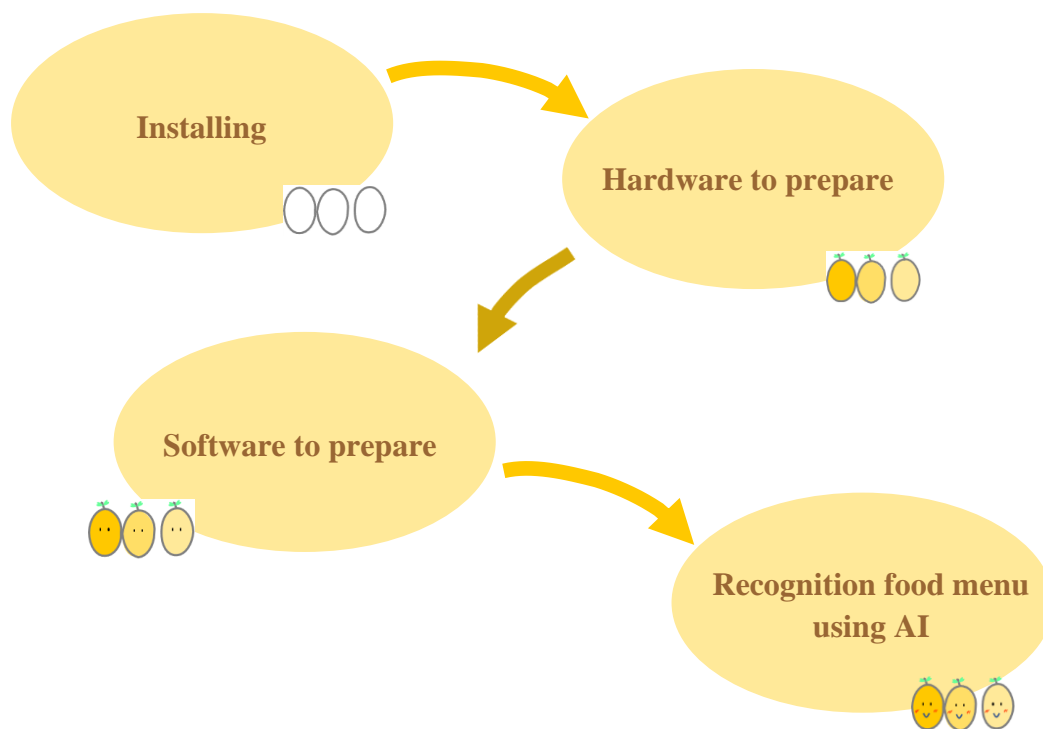
AI Beginner's Guide

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1. Introduction

This document describes the procedure to recognize food menu of color images using Ai on GR-MANGO.



2. Installing

This software can load and execute programs without using an integrated environment.

If you do not debug the program, the procedure in this chapter is unnecessary, so proceed to Chapter 3.

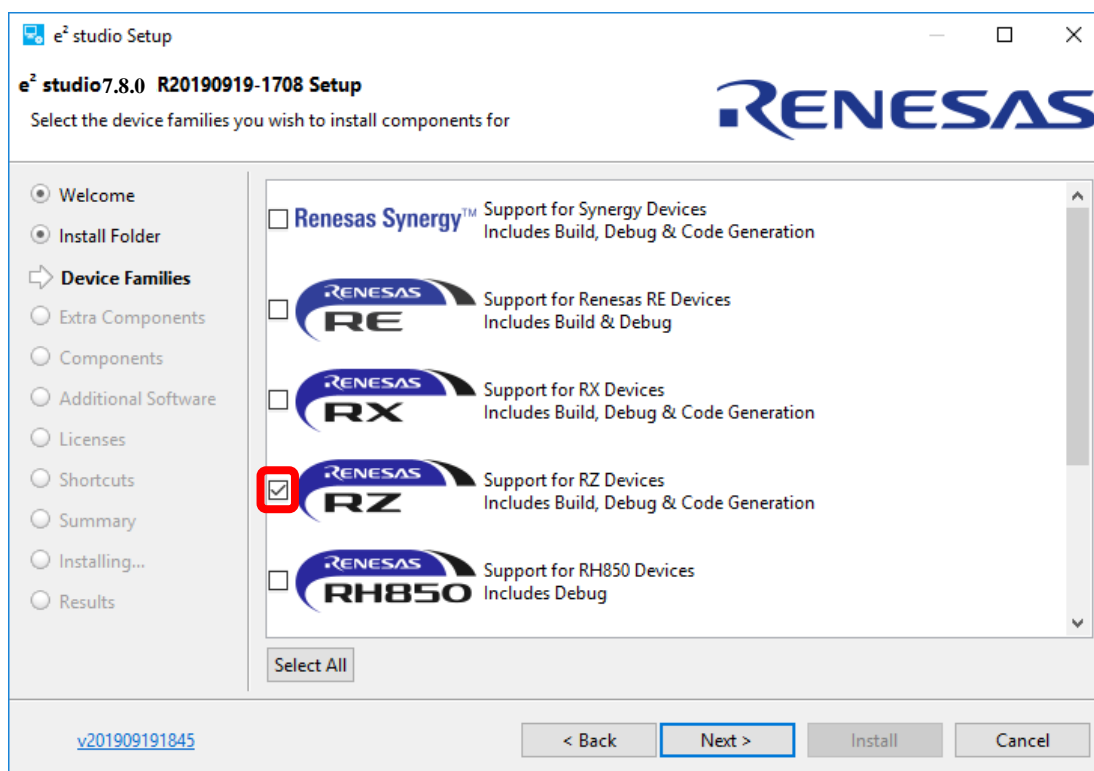
2.1 Installing e²studio integrated development environment

Please download e²studio integrated development environment and instruction.

<https://www.renesas.com/us/en/document/esw/e-studio-v780-installer-offline-installer>

Describes the installation procedure.

1. Double-click "setup e2_studio_7_8_0.exe".
2. Follow the instructions of the installer.
3. Select the "RZ" for "Device Family" below.



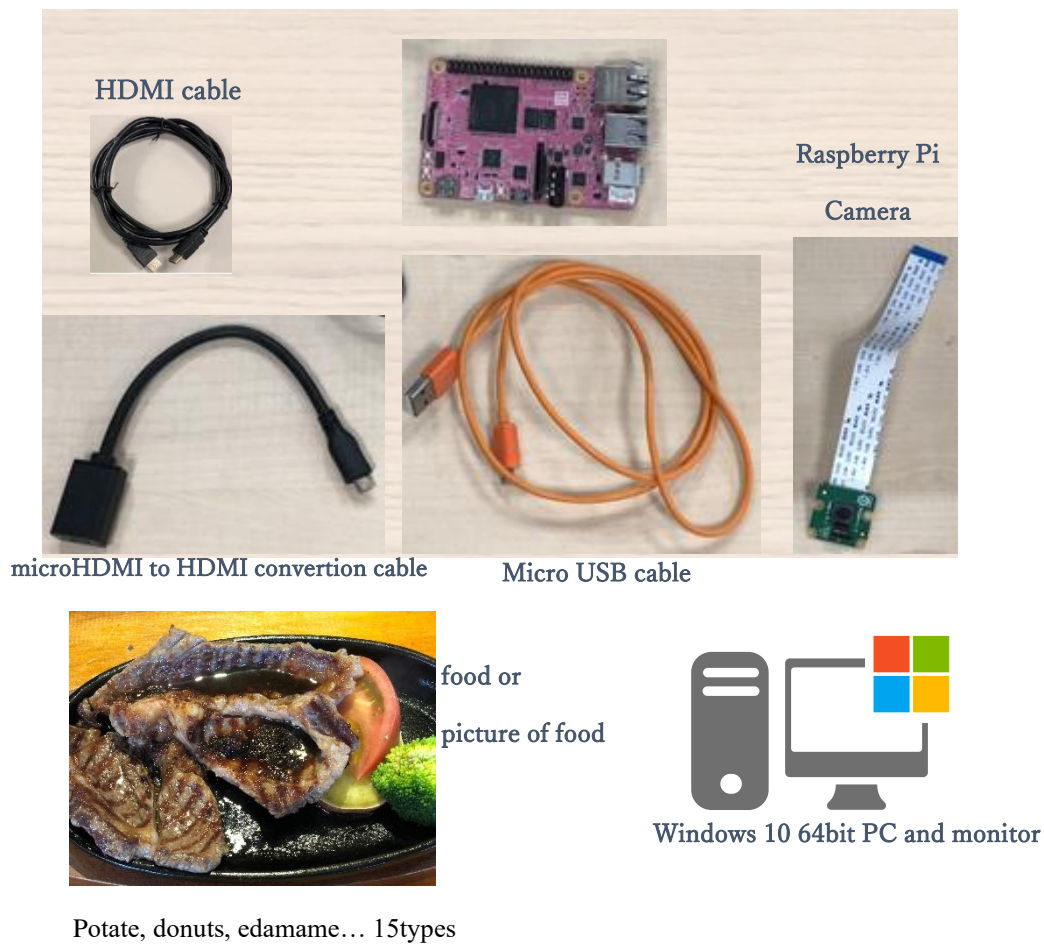
4. Follow the instructions of the installer.

3. Hardware to prepare

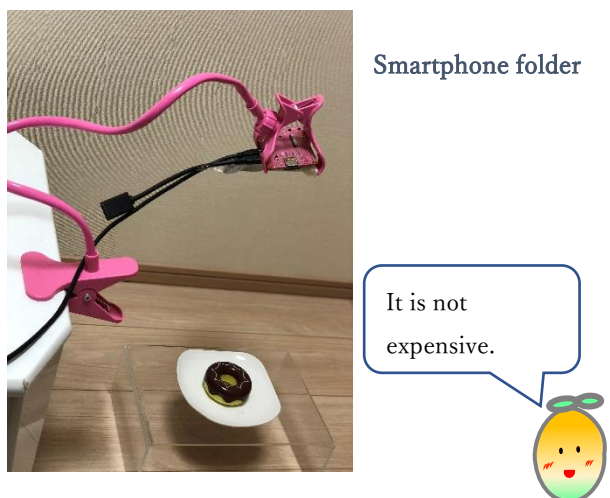
If you do not use debugger, follow step chapter 3.1.

If you use debugger, follow step chapter エラー! 参照元が見つかりません。.

3.1 Case of not using a debugger

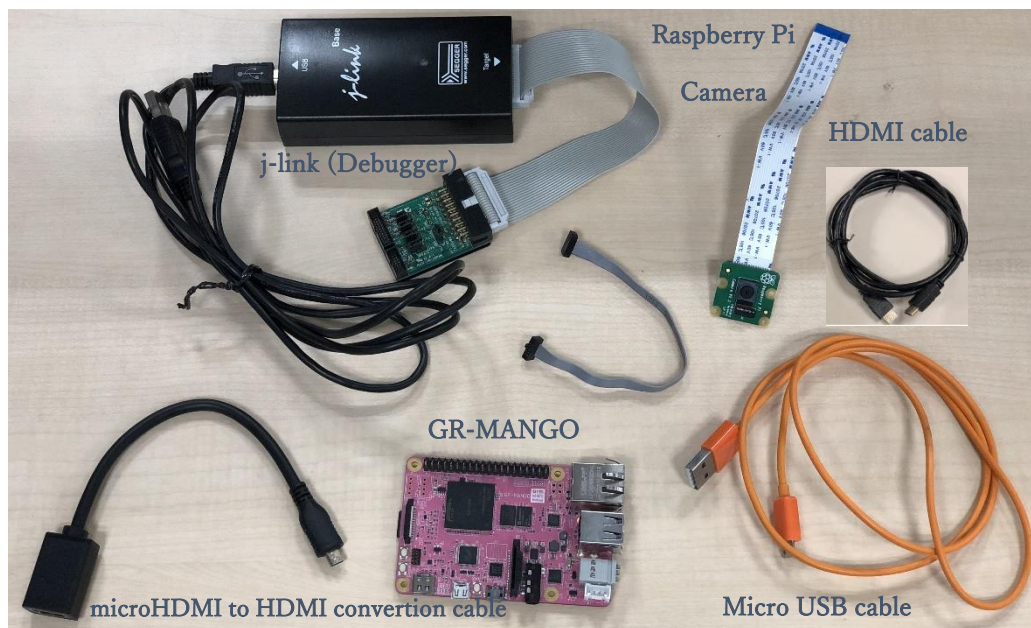


convenient thing if you have



3.2 Case of using a debugger

1. Prepare what to use.



food or
picture of food

Potato, donuts, edamame... 15types



Windows 10 64bit PC , Monitor

convenient thing if you have



Smartphone folder

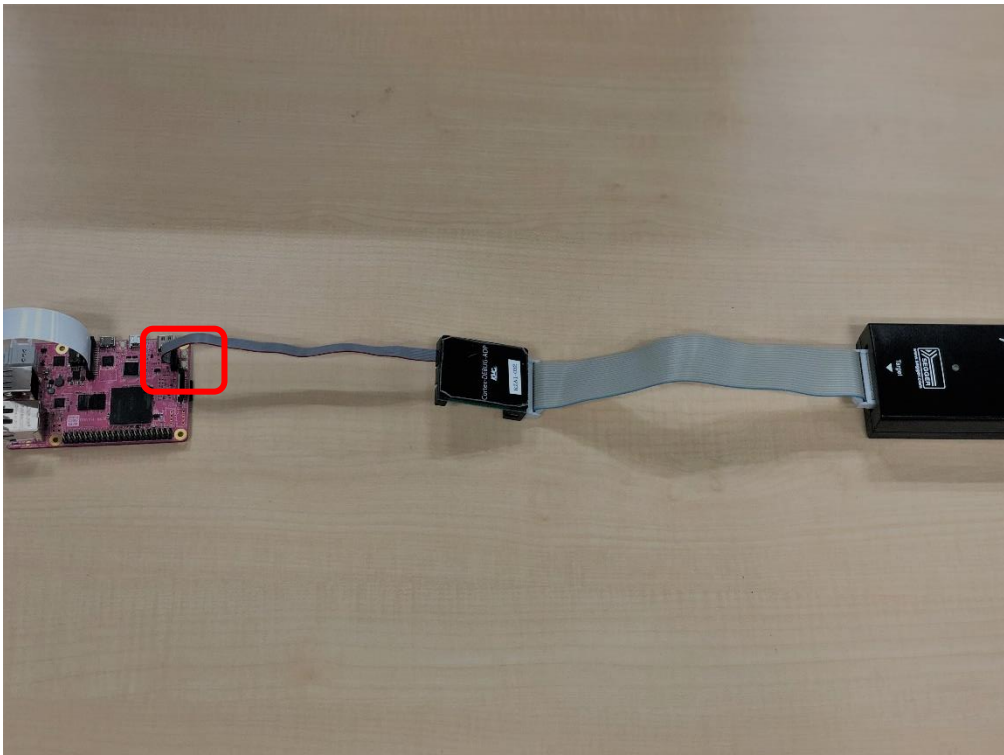
It is not
expensive.



2. Connect the mipi camera as shown below.



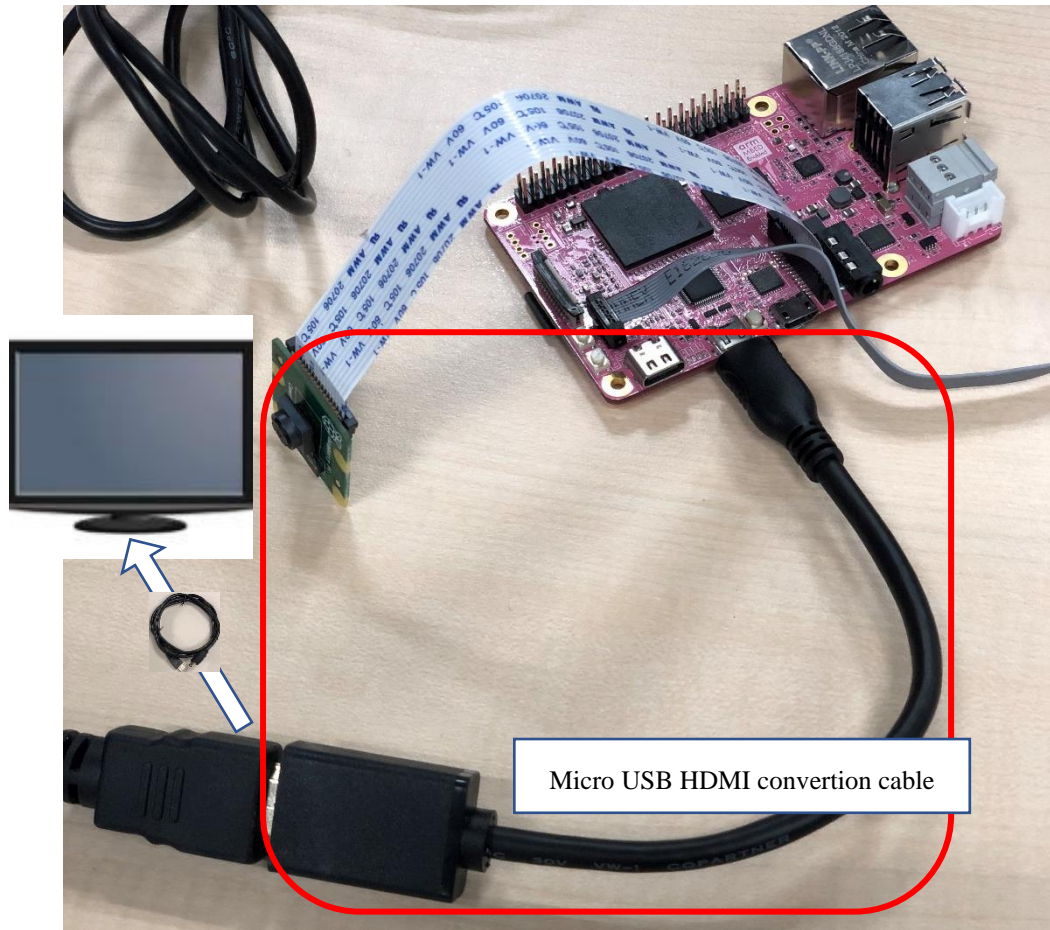
3. 2. Connect the J-Link as shown below.



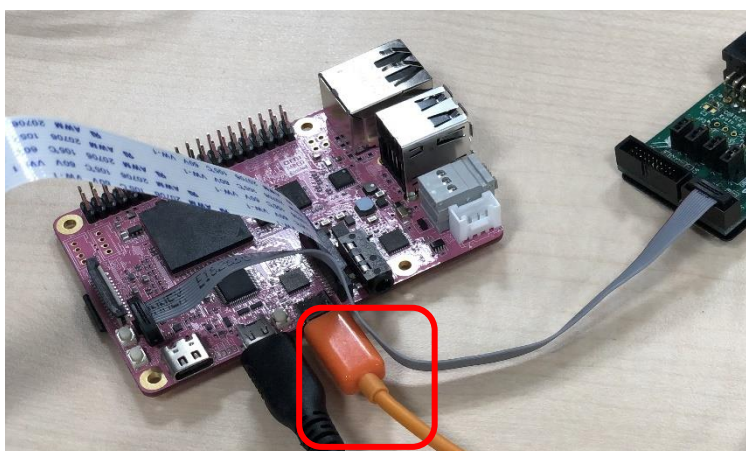
Please connect the red wire
side of the cable to the "1"
and "2" pins



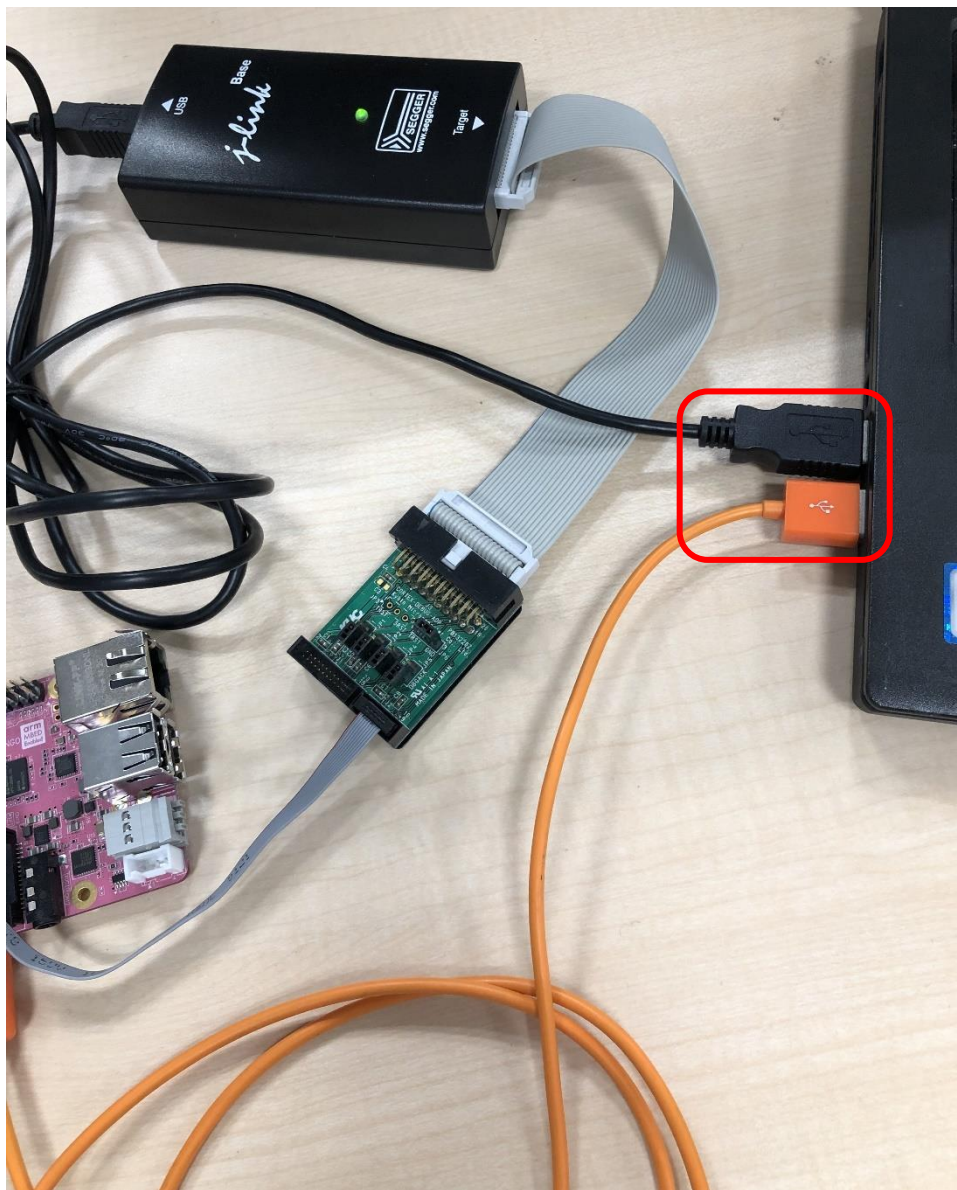
4. Connect the HDMI cable. The figure below uses a connector that converts to a microHDMI to HDMI cable. You can also use a USB Typec HDMI cable.



5. Connect the miniUSB cable for power supply as shown below. The example is a micro USB cable.



6 . Connect the J-Link and the micro USB to the PC.

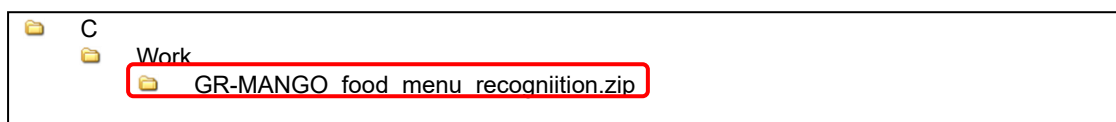


4. Software to prepare

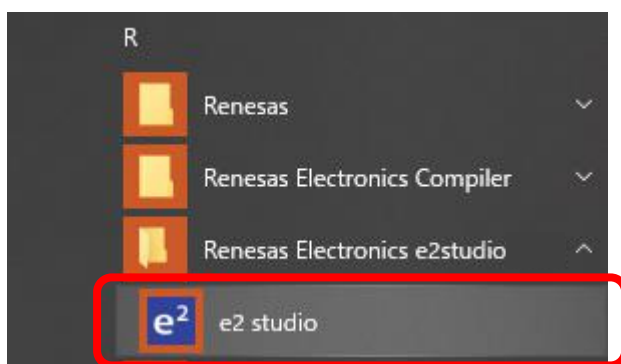
4.1 Setting procedure e2 studio

Now, set the environment of e²studio.

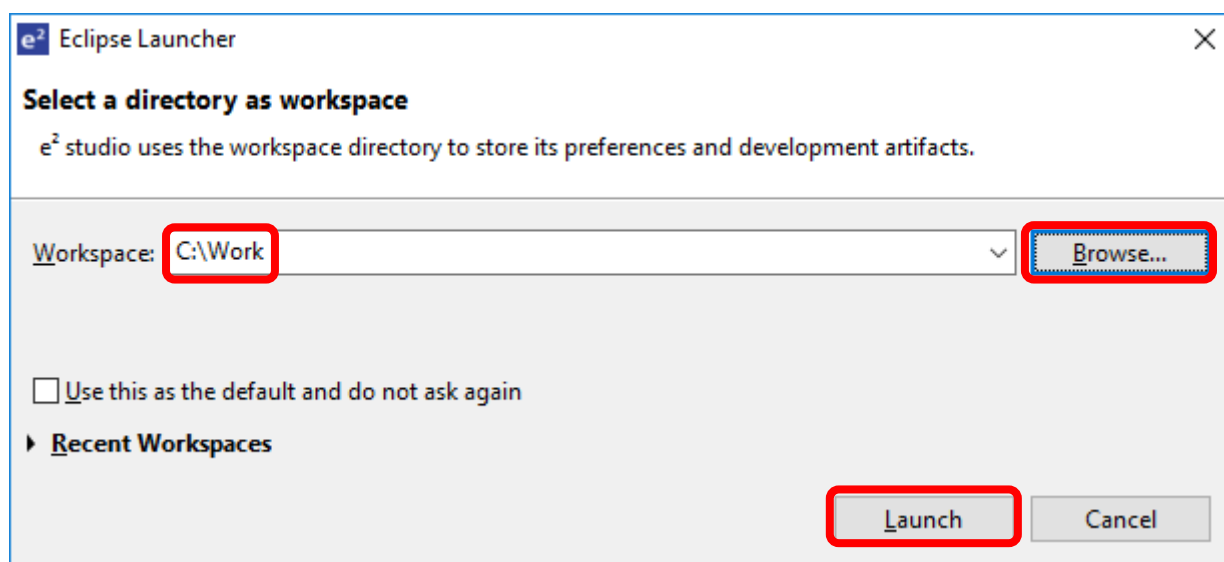
1. Unzip the GR-MANGO_food_menu_recognition.zip included in this package and store it in the work directory.
(The following example shows how to create a work directory named "Work" on the C drive and store it.)



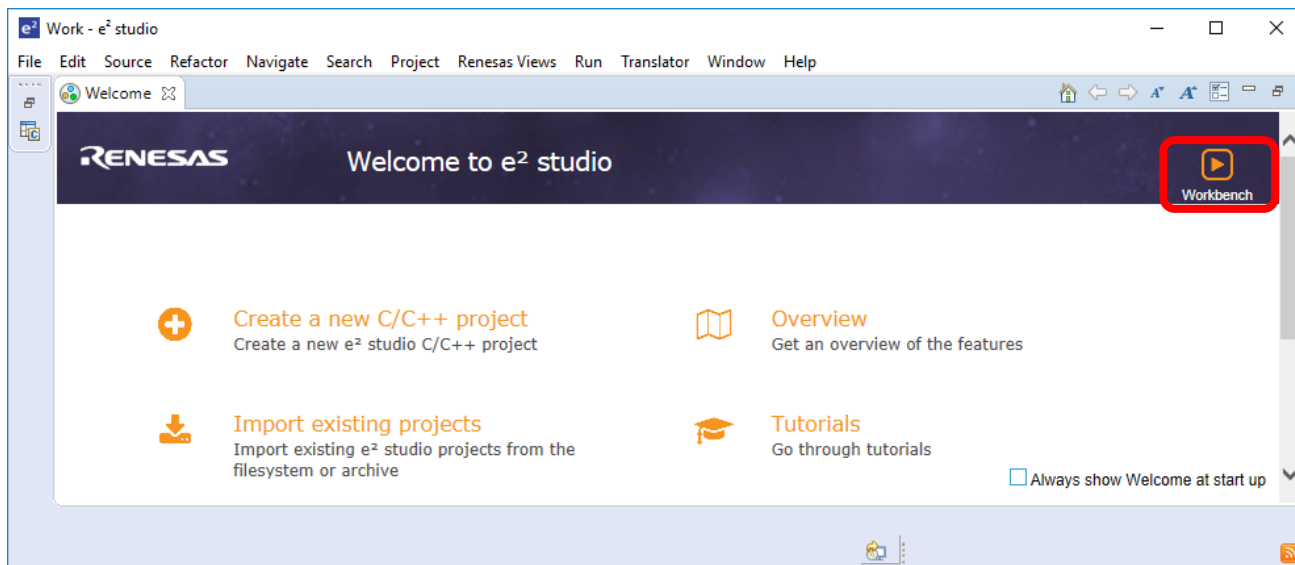
2. Start e²studio from the Windows start menu.



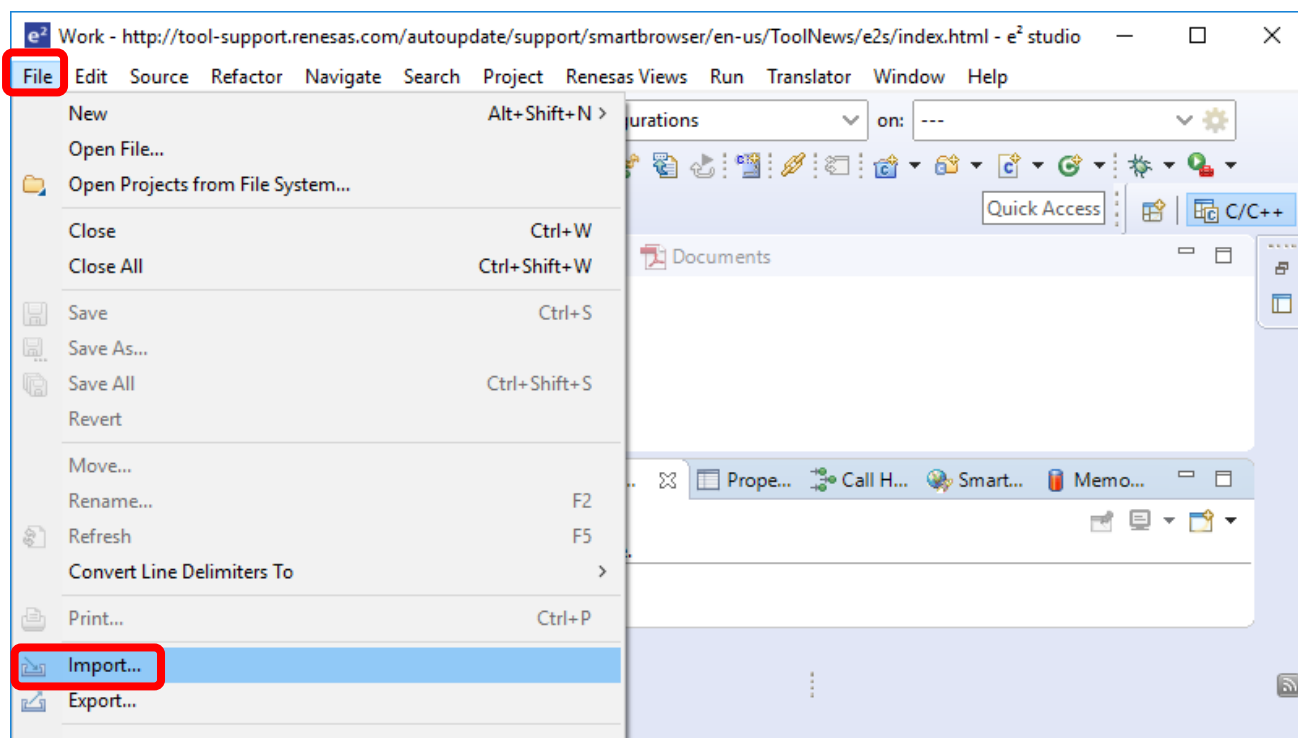
3. Click the browse button, specify "C:/Work" as the workspace, and press start. (Specified for the second and subsequent times.)



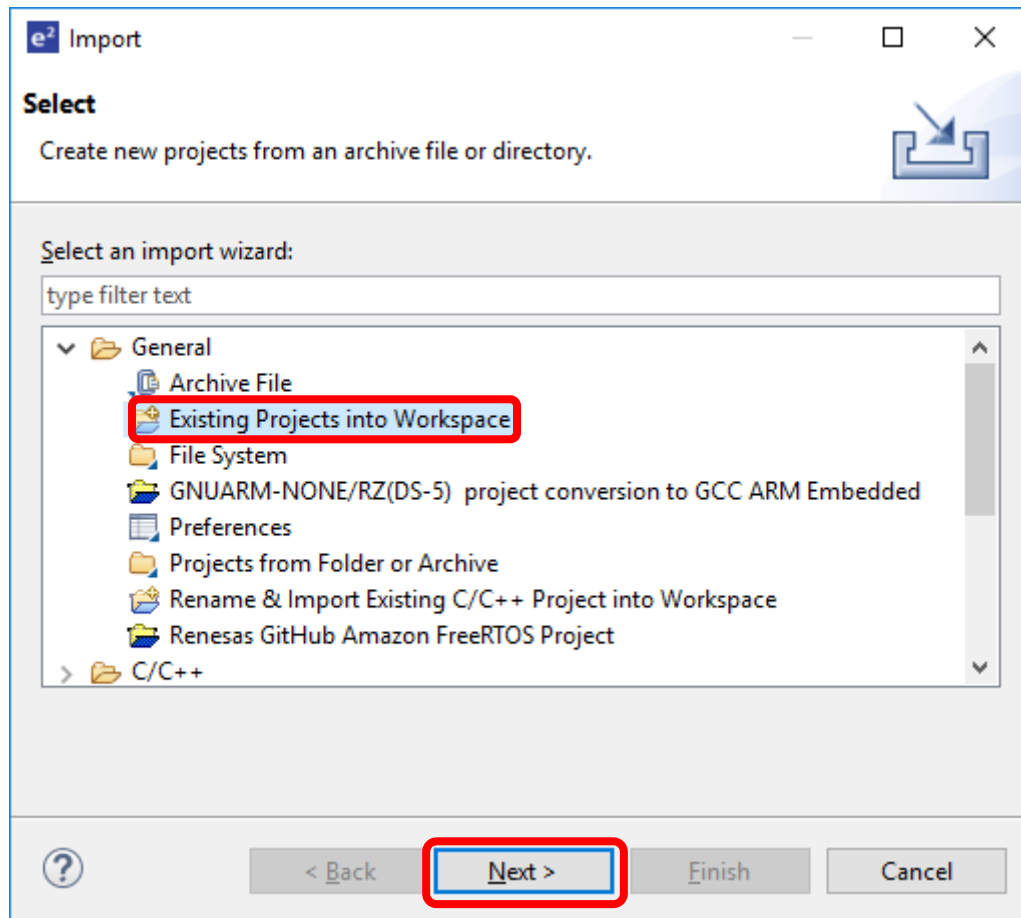
4. When the "Welcome" comes out, press the workbench button on the upper right.



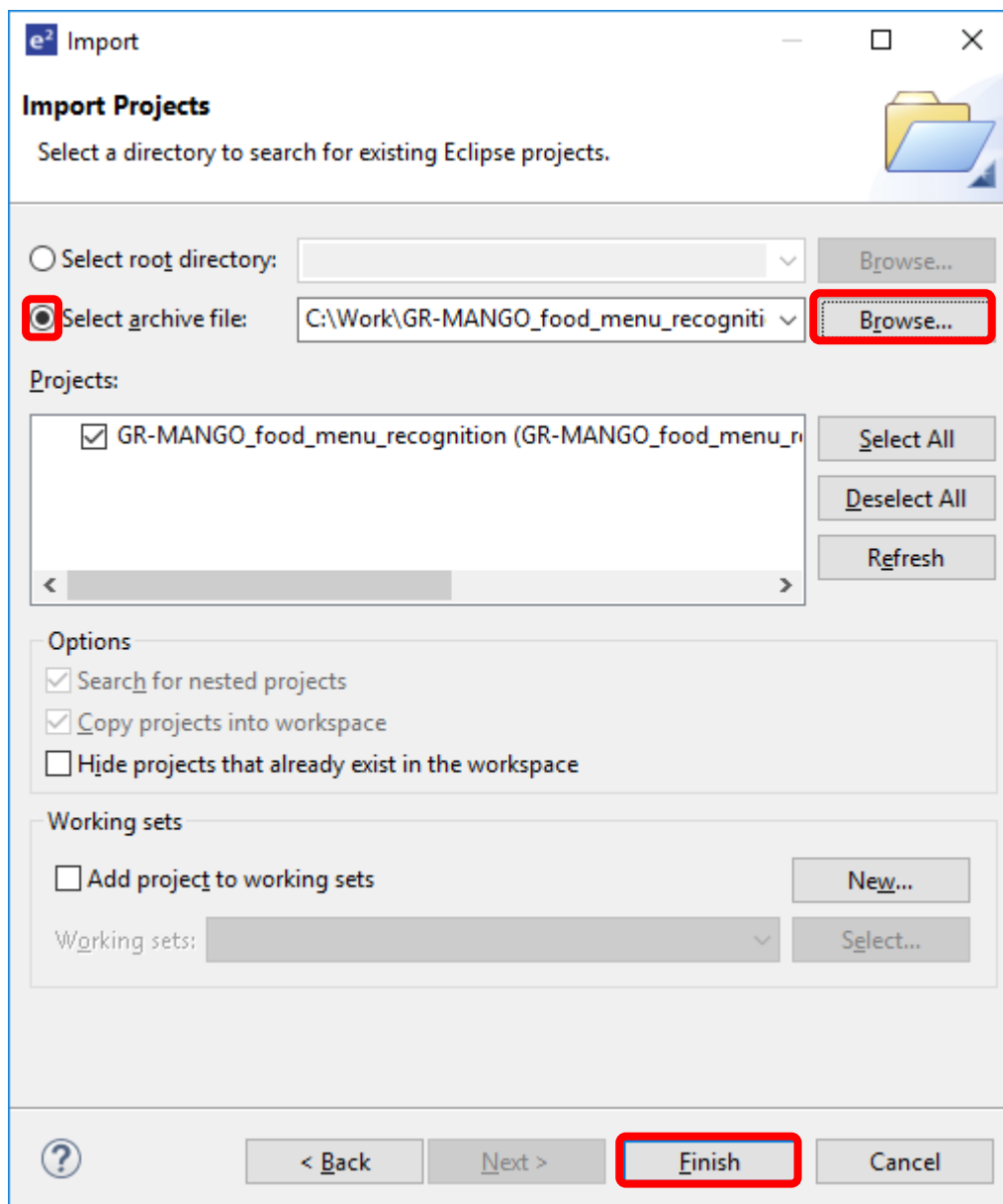
5. Press the "File" button and select "Import".



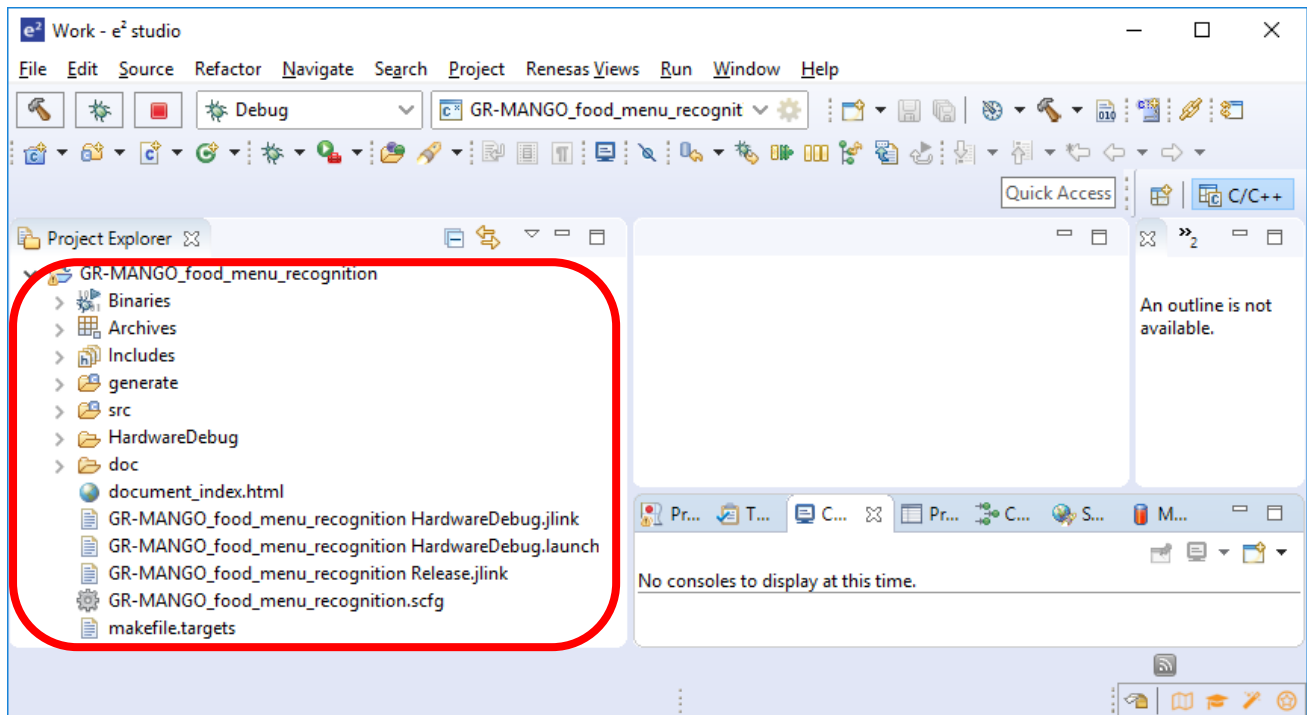
6. Press the "General", select "Existing Projects into Workspace" and press "Next".



7. Press the "Select root directory". Press the Browse button, select a directory.
(The example is selected C:/Work/GR-MANGO_food_menu_recognition) After that, press "Finish button."

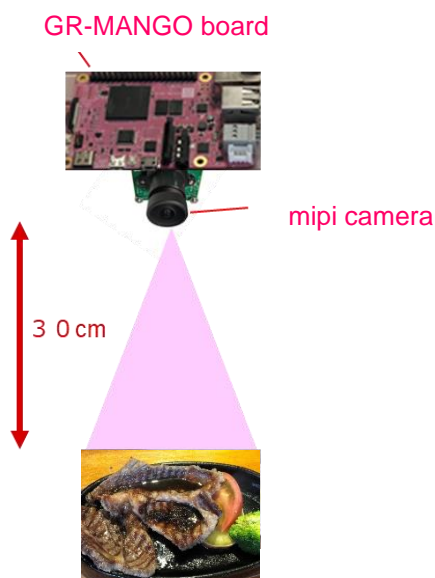


8. The project has been successfully imported.



5. Demonstration overview of recognition of food menus using AI

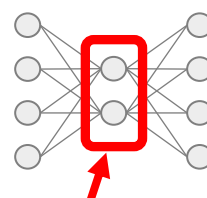
1. Shooting food menu



2. AI preprocessing



3. AI executing

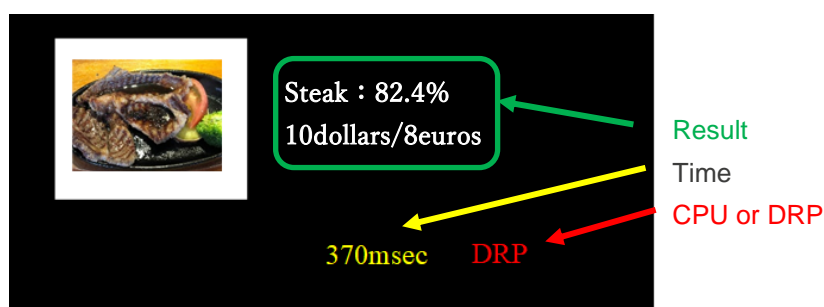


Switch between using CPU and DRP*

Color matrix correction with Simple ISP (DRP library)

NOTE: If the CNN parameters are supported by the DRP library, it can be processed 5 to 7 times faster than the CPU.

4. Recognition of food menu



6. Recognition food menu using AI

We will recognize the food menu in the setting environment in chapter.



Condition

Image used when creating a learning model	FOOD image dataset
Number of categories	15 ramen, stake, sushi, oyster, caesar_salad edamame, spaghetti_carbonara, donuts, pancakes, french_fries, hamburger, club_sandwich, hot_dog, fried_rice, pizza
format	JPEG
Input image size (height x width x number of channels)	128 × 128 × 3(RGB)

6.1 Case of not using a debugger

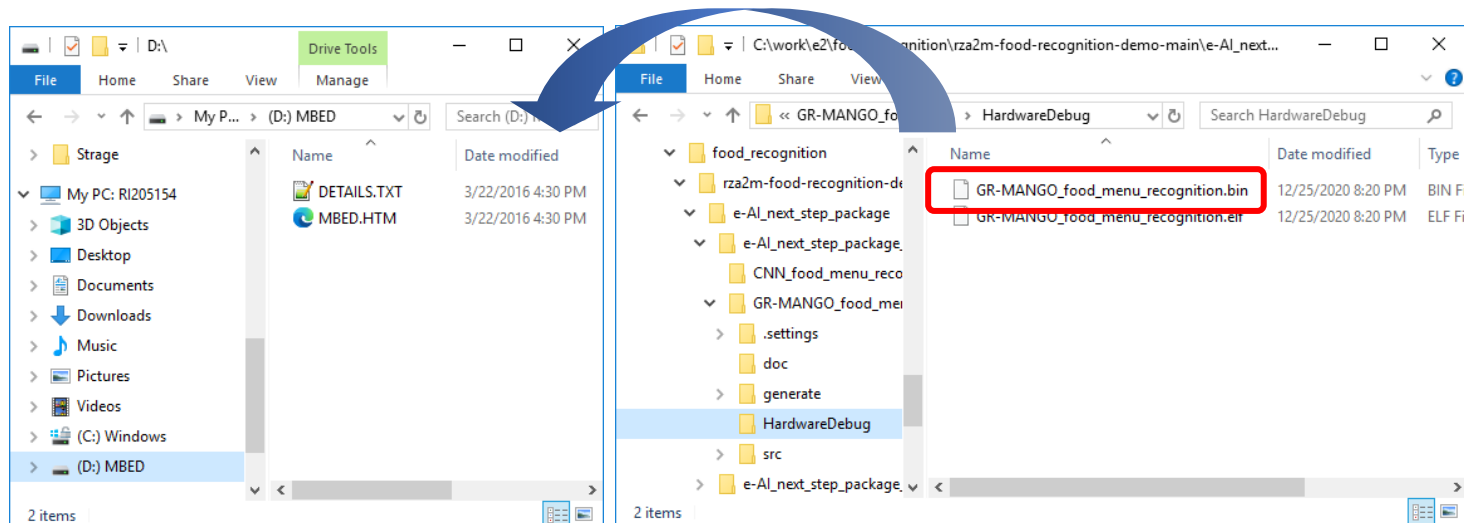
Copy GR-MANGO_food_menu_recognition.bin included in the package to the "MBED" drive that appears when you connect GR-MANGO and your PC with a Micro USB cable.

Binary file :

e-AI_next_step_package/e-AI_next_step_package_data/


GR-MANGO_food_menu_recognition/HardwareDebug/GR-MANGO_food_menu_recognition.bin

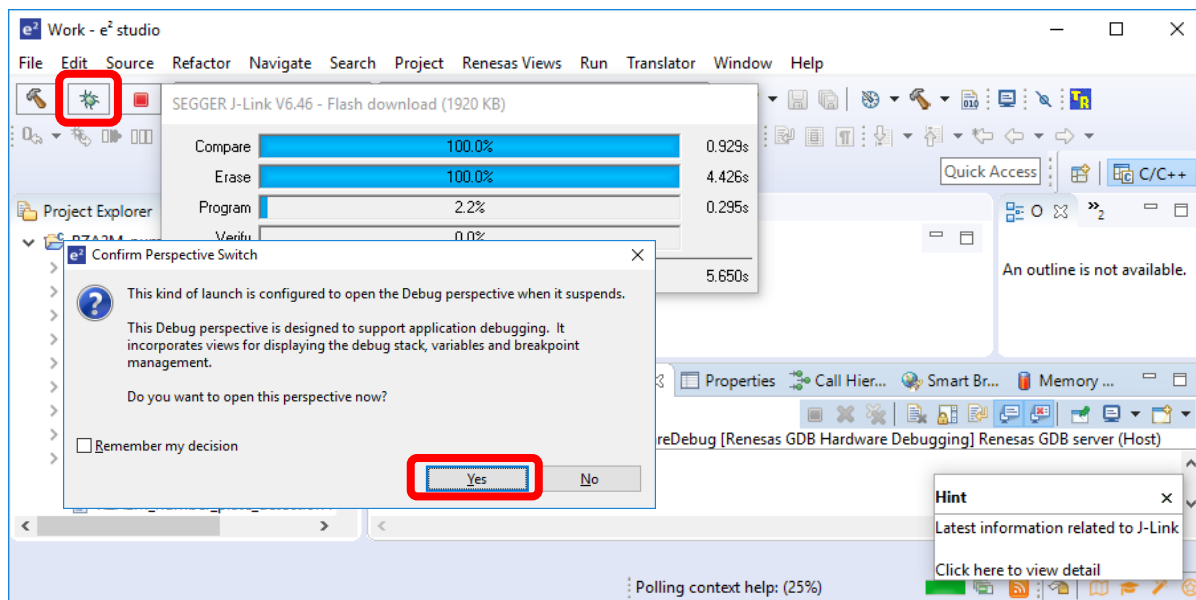
When the copy is complete, the program will run.



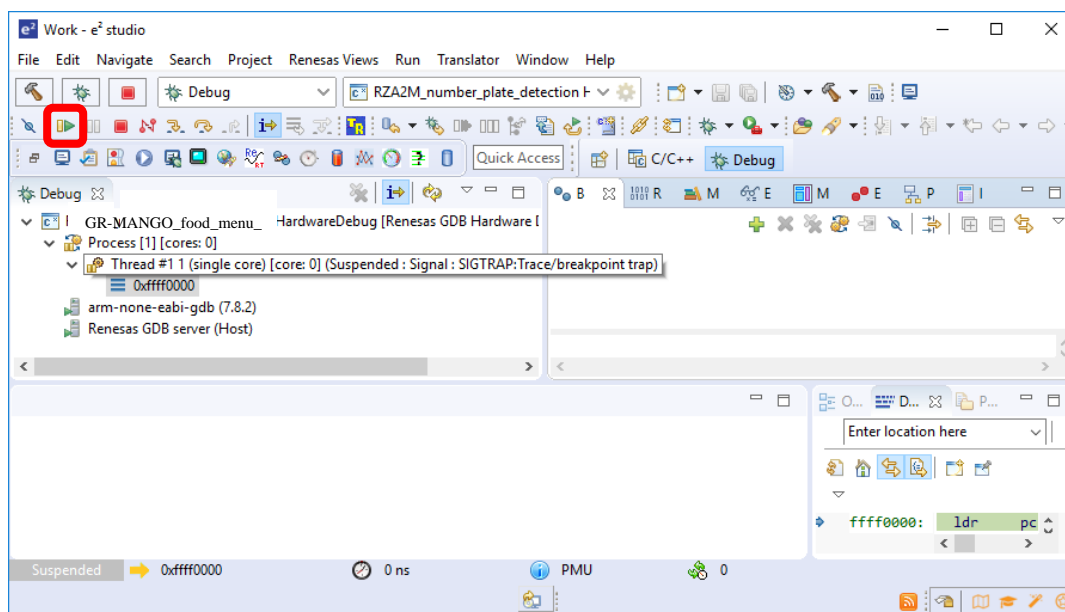
Please go to page 18.

6.2 Case of using a debugger

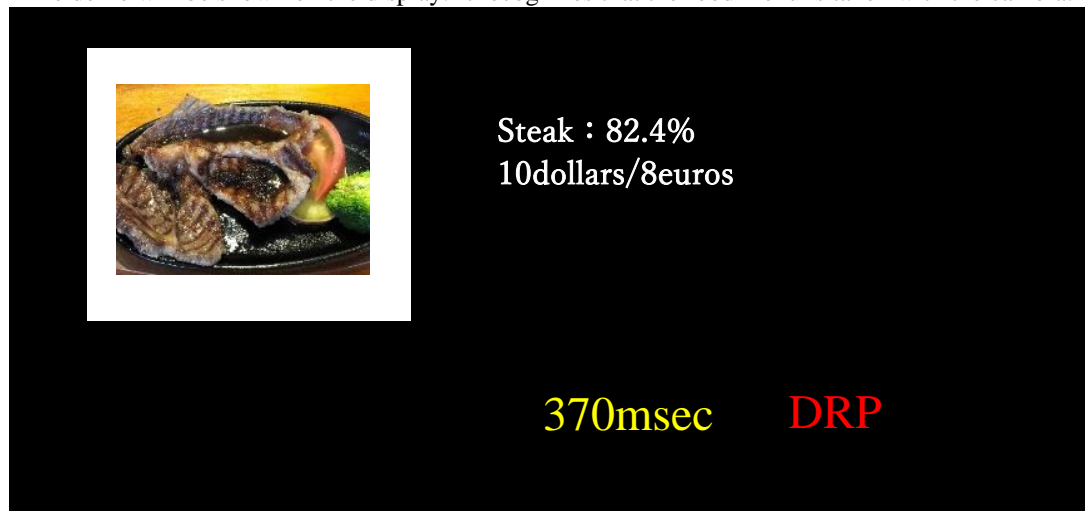
1. Click the  icon in the red frame below, start the download. The "Confirm Perspective Switch" dialog opens. Click the "Yes" button.



2. Click the icon in the red frame below twice to go to the program.



The demo will be shown on the display. It recognizes that the food menu is taken with the camera. *



This is the end of "AI food menu recognition on GR-MANGO"

"I want to change to my own original menu and make a food menu!" "I want to actually try AI learning!"

Please proceed to "AI Customization Guide with GR-MANGO".

Thank you for executing!



Note: Depending on the location, if the display becomes dark, correction may be required.

Please contact Renesas.