ArduCAM

ArduCAM ESP8266 UNO board

User Guide

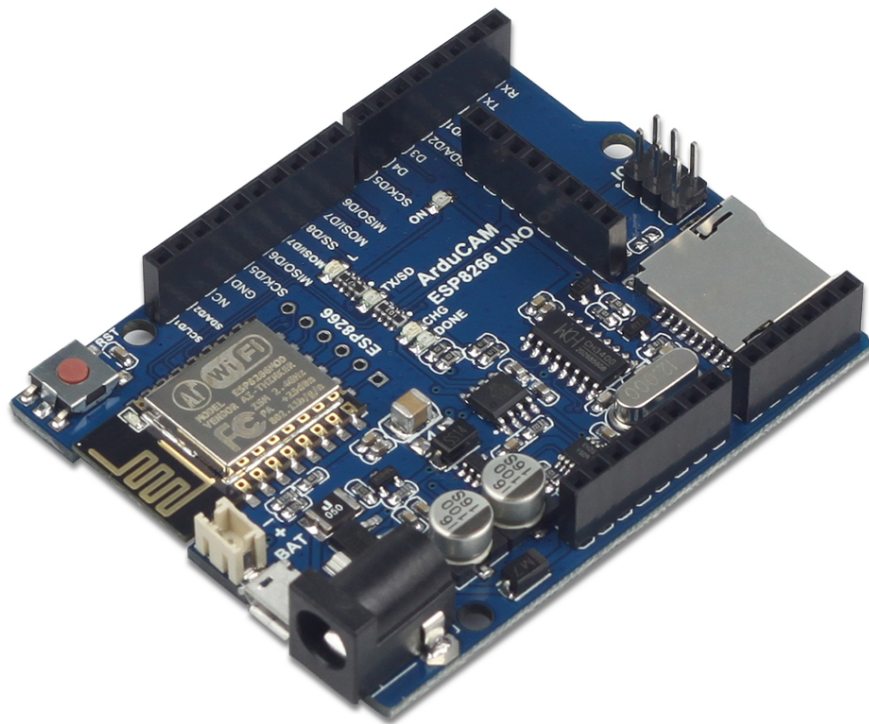Rev 1.0, Apr 2016

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1 Introduction

ArduCAM now released a ESP8266 based Arduino board for ArduCAM mini camera modules while keeping the same form of factors and pinout as the standard Arduino UNO R3 board. The high light this ESP8266 board is that it well mates with ArduCAM mini 2MP and 5MP camera modules, supports Lithium battery power supply and recharging and with build in SD card slot. It can be an ideal solution for home security and IoT camera applications.
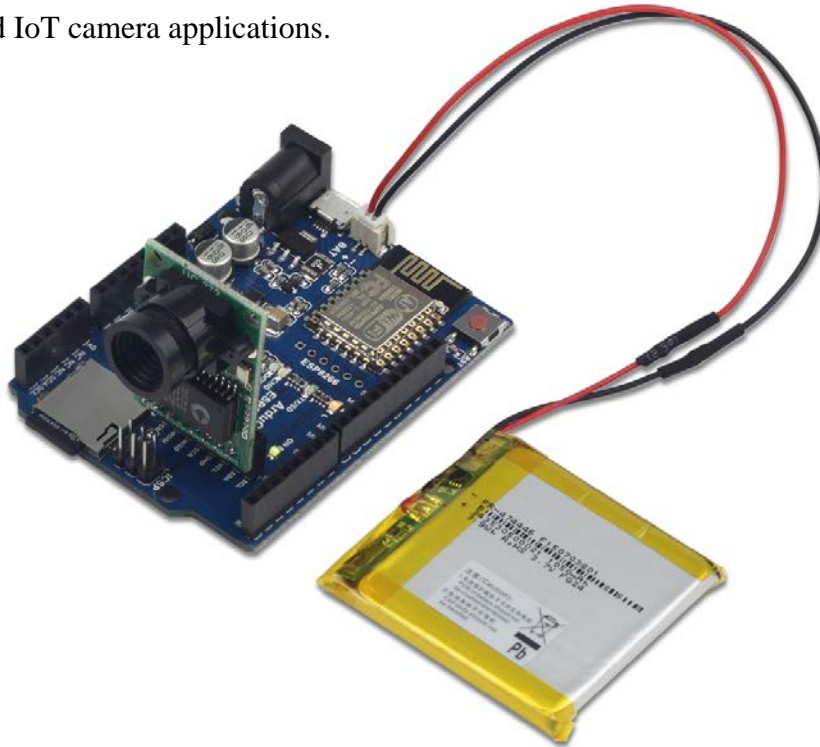

Figure 1 ArduCAM ESP8266 UNO Kit

2 Features

➢ Build in ESP8266-12E Module

➢ 11 digital input/output pins, IO ports are 3.3V tolerant

➢ 1 analog input(3.2V max input)

➢ ArduCAM Mini 2MP/5MP camera interface

➢ Lithium battery recharging 3.7V/500mA max

➢ Building in SD/TF card socket

➢ 7-12V power jack input

➢ Build in micro USB-Serial interface

➢ Compatible with Arduino IDE
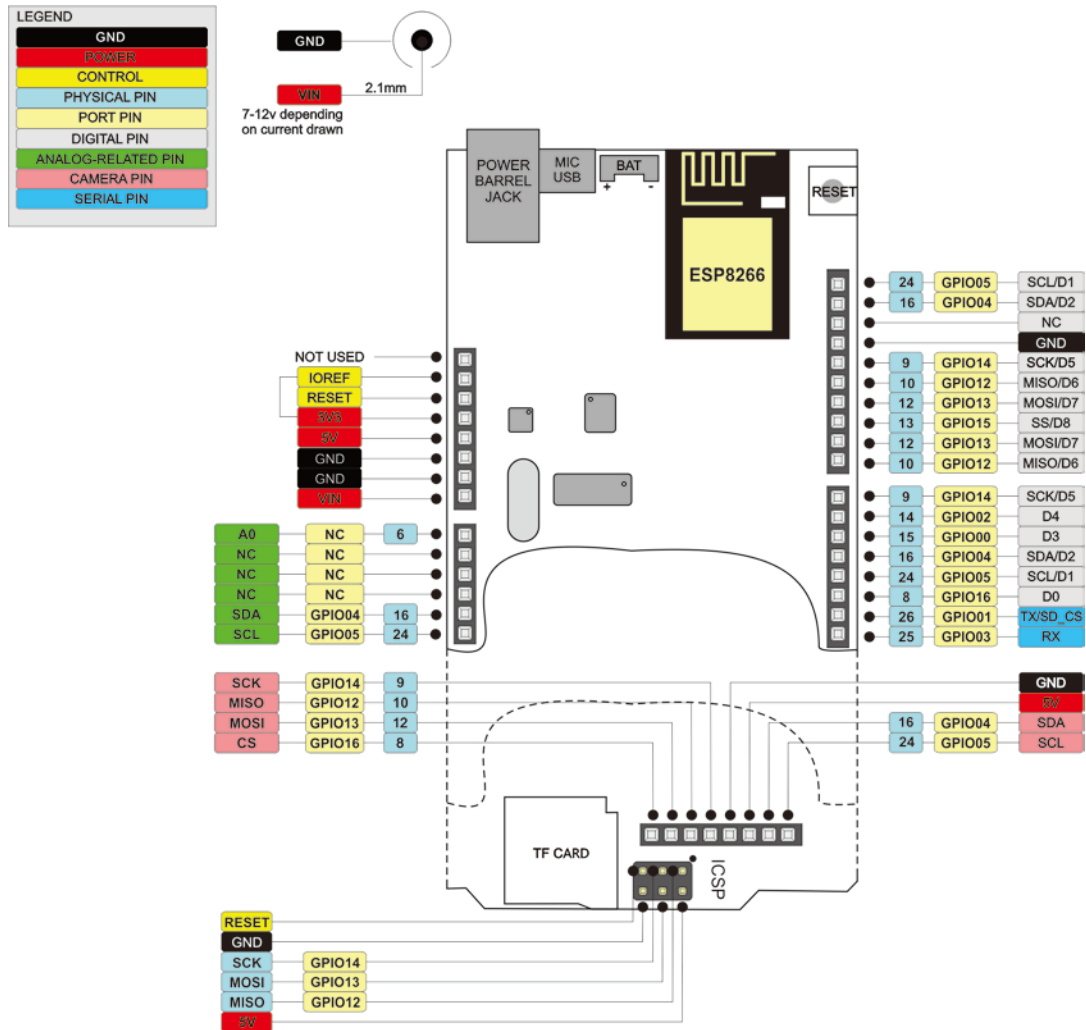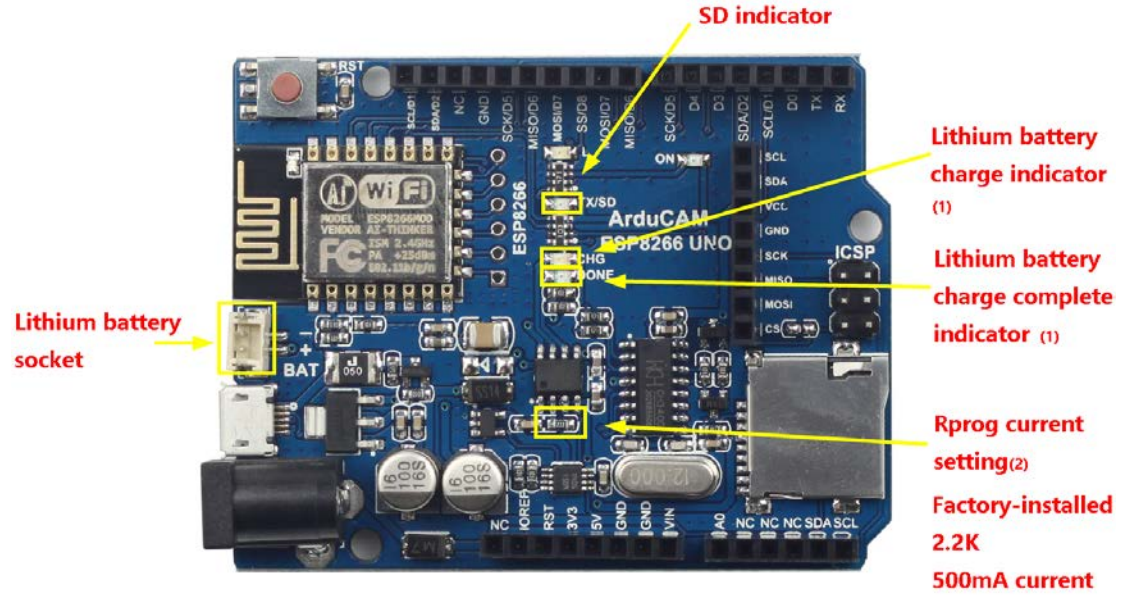
3 Pin Definition

Figure 2 ArduCAM ESP8266 UNO Pin Out

Note that the SD/TF card CS pin is shared with UART TX signal, so the UART and the SD/TF can't be used at the same time.

The board has build in Lithium battery charger, which accepts default 3.7V/500mA Lithium battery. The charging indicator and charging current setting can be found from the Figure 3.

(1) indicator light state

Charge state	Yellow LED $\overline{CHRG}$	Greed LED $\overline{STDBY}$
charging	bright	extinguish
Charge Termination	extinguish	bright
Vin too low; Temperature of battery too low or too high; no battery	extinguish	extinguish
BAT PIN Connect 10u Capacitance; No battery	Greed LED bright，Yellow LED Coruscate T=1-4 S	

(2) Rprog Current Setting

R_{PROG} (k)	I_{BAT} (mA)
10	130
5	250
4	300
3	400
2	580
1.66	690
1.5	780
1.33	900
1.2	1000

Figure 3 Battery Charging Indicator and Current Settings

4 Getting Started ESP8266 with Arduino IDE

This chapter shows you how to develop an application for ArduCAM ESP8266 UNO board using Arduino IDE.

4.1 Installing with Boards Manager

Starting with 1.6.4, Arduino allows installation of third-party platform packages using Boards Manager. We have packages available for Windows, Mac OS, and Linux (32 and 64 bit).

➢ Install Arduino 1.6.8 from the Arduino website.

➢ Start Arduino and open Preferences window.

➢ Enter the following link into Additional Board Manager URLs field. You can add multiple URLs, separating them with commas.

http://www.arducam.com/downloads/ESP8266_UNO/package_ArduCAM_index.json

➢ Open Boards Manager from Tools -> Board menu and install ArduCAM_ESP8266_UNO addon package.

Note that the installed package source file is located in the C:\Users*Your computer name*\AppData\Local\Arduino15\ folder, here is
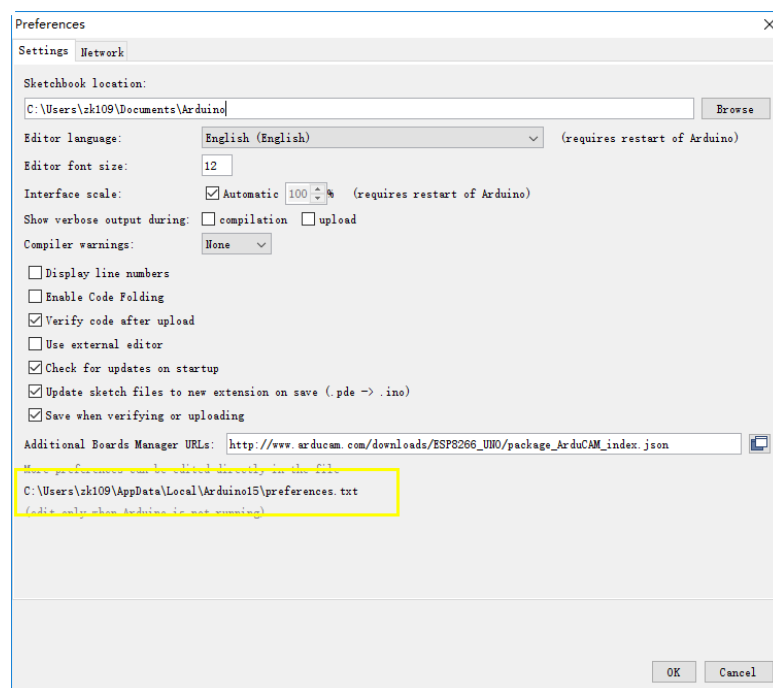
C:\Users*zk109*\AppData\Local\Arduino15\ for example.

Figure 4 ArduCAM ESP8266 UNO addon package

4.2 Using Arduino IDE

After installation of ArduCAM ESP8266 UNO board add-on package, you can select this board from the Tool->Board menu. And there several ready to use examples from the File->Examples->ArduCAM. You can use these examples directly or as a starting point to develop your own code.

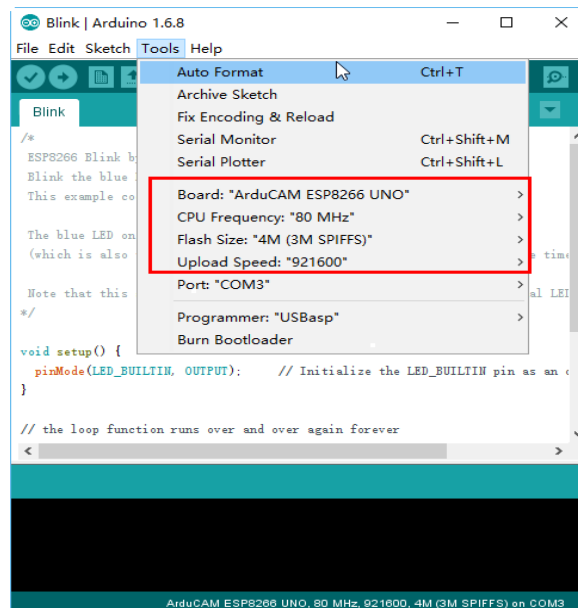➢ Select ArduCAM_ESP8266_UNO board from Tool->Board menu.

Figure 5 Board Selection

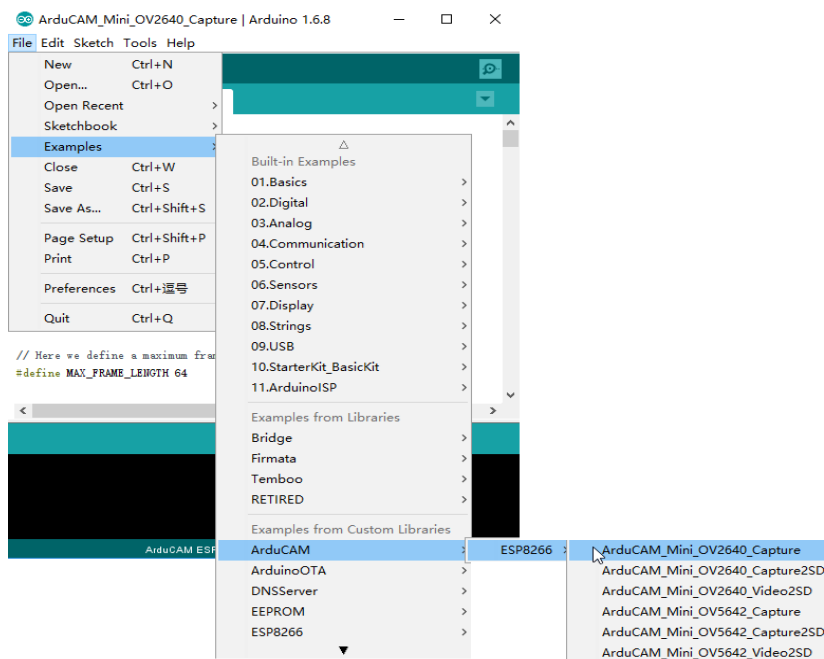➢ Select the example from File->Examples->ArduCAM .

Figure 6 Example Selection

➢ Configure the camera setting

You need to modify the *memorysaver.h* file in order to enable OV2640 or

OV5642 camera for ArduCAM Mini 2MP or 5MP camera modules. Only one

camera can be enabled at a time. The *memorysaver.h* file is located at

C:\Users*Your computer name*\AppData\Local\Arduino15\packages\

ArduCAM_ESP8266_UNO\hardware\ArduCAM_ESP8266_UNO\2.1.0\libraries\ArduCAM

Figure 7 Camera Configuration

➢ Compile and uploading

Change the SSID and password if needed with your own network environment

before compile the example. Click uploading the example will automatically

flashed into the board.

4.3 Examples

There are 3 examples for both 2MP and 5MP ArduCAM mini camera modules.

➢ ArduCAM_Mini_OV2640_Capture (or ArduCAM_Mini_OV5642_Capture)

This example uses HTTP protocol to capture still or video over home wifi

network from ArduCAM mini 2MP/5MP and display on the web browser.

Using this example the ssid and password should be modifies before uploading.

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Figure 8 Wifi Camera Example

After uploading, the board IP address is obtained via DHCP protocol. You can figure out the IP address through the serial monitor as Figure 9 shown. The default serial monitor baudrate setting is 115200bps.
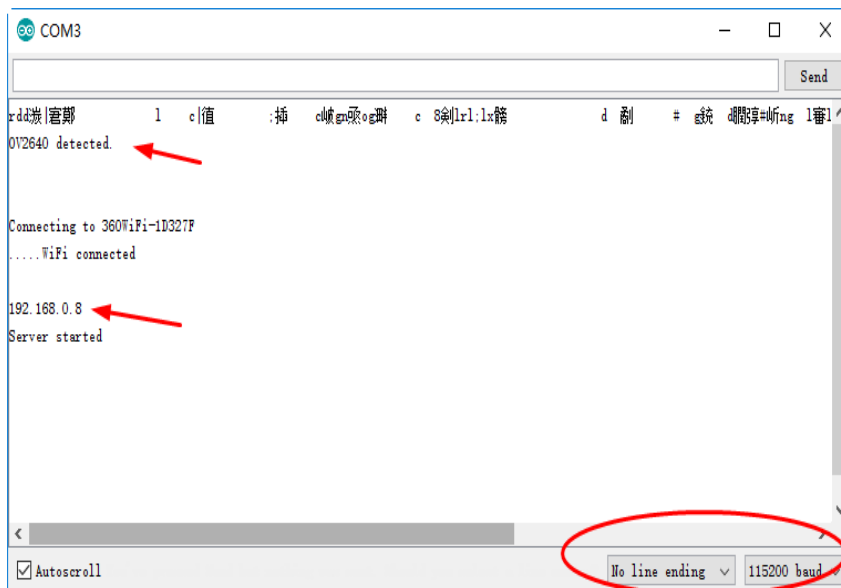

Figure 9 Identifying IP address

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Finally, open the index.html or video.html, input the IP address obtained from the serial monitor then take pictures or videos. The html files are located at

C:\Users*Your computer name*\Local\Arduino15\packages\

ArduCAM_ESP8266_UNO\hardware\ArduCAM_ESP8266_UNO\2.1.0\libraries\ArduCAM\examples\ESP8266\
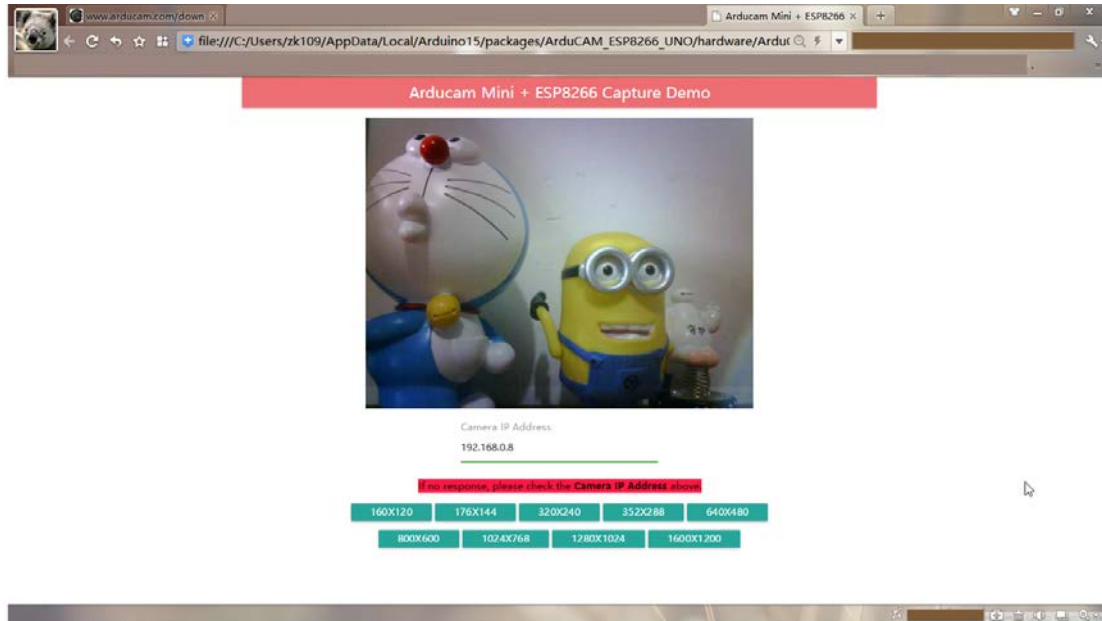
ArduCAM_Mini_OV2640_Capture\html

Figure 10 Example Html page

➢ ArduCAM_Mini_OV2640_Capture2SD (or ArduCAM_Mini_
OV5642_Capture2SD)

This example takes time elapse still photos using ArduCAM mini 2MP/5MP and then stored on the TF/SD card. The LED indicates when the TF/SD card is writing.

➢ ArduCAM_Mini_OV2640_Video2SD (or
ArduCAM_Mini_OV5642_Video2SD)

This example takes motion JPEG video clips using ArduCAM mini 2MP/5MP and then stored on the TF/SD card as AVI format,about 4 minutes to complete.

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