Grove - Mini Camera

If you are searching a small size camera, perhaps, Grove-Mini Camera would be your best choice. It's a mini camera which can be controlled by Arduino. It has integrated image processing to generate 1280*720 JPEG image. The captured pictures are stored in SD card and you can read SD card information via USB interface.

Features

- Standard USB Interface and Grove Interface
- High resolution
- Tiny size and light weight

For all Grove users (especially beginners), we provide you guidance PDF documents. Please download and read through Preface - Getting Started and Introduction to Grove before your using of the product.

Specification

Item	Performance Parameter
CPU	ARM9
Video Decode	H.263 Accele
Video Format	AVI
Video Encode	MPEG4
Video Resolution	640*480
Video Frame Rate	30FPS
Run Software	support AVI Player
Photo Format	JPEG
Image Resolution	1280*720
Charge mode	DC5V
Data Communication Interface	8Pin USB
Storage Medium	Micro SD (Max 32G)

Demonstration

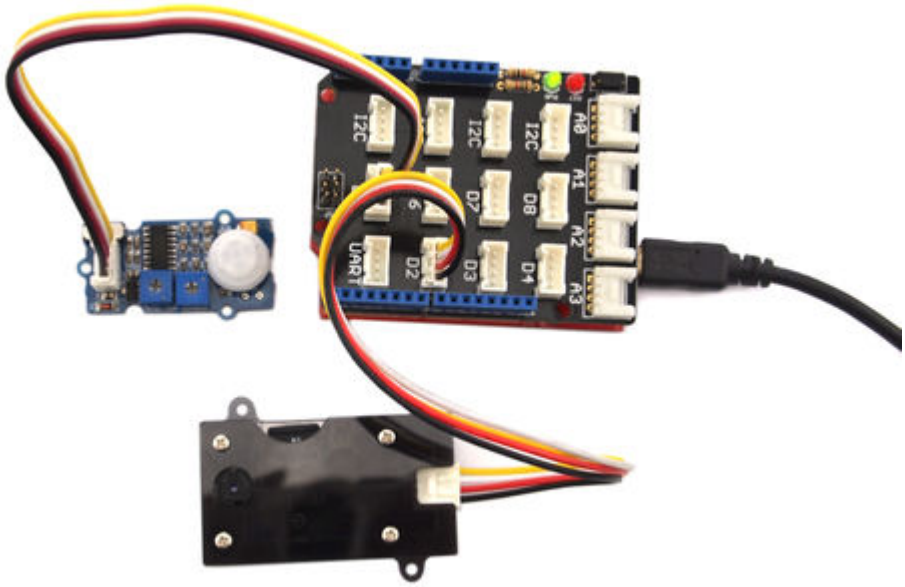
Different from general camera, Grove - Mini Camera can be controlled by Arduino/Seeeduino.

Now let's use the Grove - Mini camera to achieve this function: shoot a picture every time when someone approaches.

To do it, we need a Grove - PIR Motion sensor which can spot any motion within a certain scope.

Let's start to make it:

- Plug SD card into SD card socket, SD card is not included in this Grove and its size can't be larger than 32G.
- Connect Grove - Mini Camera to D2 port of Grove - Base Shield, and Grove - PIR Montion Sensor to D5 port.
- Plug Grove - Base Shield into Arduino/Seeeduino, then connect Arduino/Seeeduino to PC using a USB cable.



- Open Arduino IDE, copy and paste the code below to a new sketch:

```
/*Using digital 2 to control Camera*/
/*Using digital 5 to receive sensor signal*/
#define KEY 2
#define PIR_MOTION_SENSOR 5

void setup()
{
  Serial.begin(9600);
  pinMode(KEY,OUTPUT);
  pinMode(PIR_MOTION_SENSOR,INPUT);
  delay(100);
  enterStandbyMode();
  makeVideo(5000);

}
void loop()
{
        int sensorValue = digitalRead(PIR_MOTION_SENSOR);
        if(sensorValue == HIGH)  //when the sensor value is HIGH, someone is in here
        {
           takePicture();
           delay(5000);
```

```
        }
}
void takePicture(void)
{
   digitalWrite(KEY,HIGH);
   delay(1000);
   digitalWrite(KEY,LOW);
   delay(1000);
}
void enterStandbyMode(void)
{
  //set the key pin as high level for 2s,enter the standby state
  digitalWrite(KEY,HIGH);
  delay(2000);
  digitalWrite(KEY,LOW);
  delay(1000);
}
void makeVideo(long int videoTime)
{
  //set the key pin as high level for 2s again, from the standby state to video state
  digitalWrite(KEY,HIGH);
  delay(2000);
  digitalWrite(KEY,LOW);
  delay(videoTime); //make a  video for videoTime.Its unit is ms.
 // stop the video
  digitalWrite(KEY,HIGH);
  delay(1000);
  digitalWrite(KEY,LOW);
  delay(1000);
}
void PoweroffMode(void)
{
  //set the key pin as high level for 5s,enter the poweroff state
  digitalWrite(KEY,HIGH);
  delay(5000);
  digitalWrite(KEY,LOW);
  delay(1000);
}
```

- Upload the code. Please click here if you do not know how to upload.
- Now there should be a video in the SD card because we call the function once during Setup(). To play the video, you can either directly connect the camera to PC via USB cable or use a reader to read it. And if somebody approaches when it's working, you should also find some pictures in the SD cards also.

Reference

Here is the state description of this mini camara. There are 5 working states.
1. Standby： Set key as high level for 2 seconds when in the power off state, Red LED will come on. Mini camera enters Standby state.
2. Power off: Set key as high level for 5 seconds, camera enter Power off state, Red LED will fade out.
3. Take pictures: Set key as high level for about 1000ms when in the power on state, camera can take a picture. Red LED will blink once to tell you that one picture has been taken. Afterwards, it automatically enters standby state.
4. Video: Set key as high level for 2 seconds when in the standby state, Camera will enter video state and red LED blinks continuously. To stop it, set key as high level for about 1000ms, camera will enter to standby state.

5. Files storage: Connect camera to pc using USB cable, you can open image file and VIDEO file. You can also access the files in the SD card by a SD card reader.