# Using GadgetPC as a Digital Video Recorder (DVR)

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## Overview

GadgetPC can be combined with low-cost USB webcams and USB Flash Drives to create very low-cost and powerful Digital Video Recorder (DVR) systems.

More than one webcam can be connected to GadgetPC. This is useful in situations where multiple fixed cameras can cover the full 360° view, instead of using more expensive and complicated pan and tilt systems.

In this example, we will use PK-333MB Webcam from A4 Tech but any compatible Webcam can be used.

# GadgetPC - DVR

## Parts Required

1 x GadgetPC
1 x ADP-5V1A-MiniUSB Power Adapter
1 x DUB-E100 Ethernet card or WUA-1340 Wi-Fi card
1 x Ethernet Cable (if using DUB-E100)
1 x USB Flash Drive to run Linux (optional)
Up to 4 x Webcam (see supported hardware)

Connect the various components as shown in *Figure 1*.

- The MiniUSB Power Adapter should be connected to a power source such as a computer or a USB to AC Adapter.
- The DUB-E100 Ethernet card or WUA-1340 Wi-Fi card should be connected to any one of GadgetPC's USB ports while the Ethernet cable is connected to a router or modem.
- The webcam should be connected to any one of GadgetPC's USB ports.

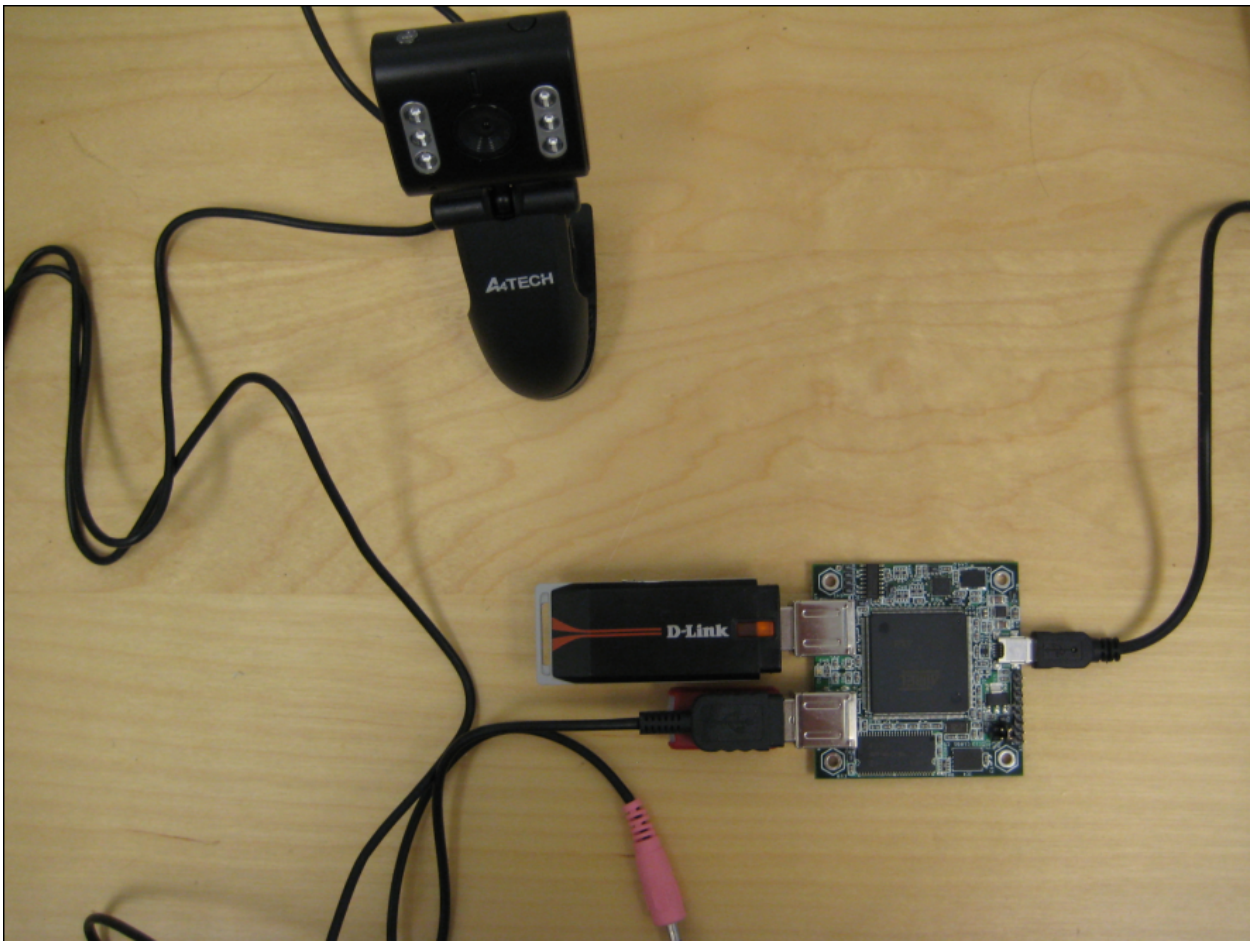
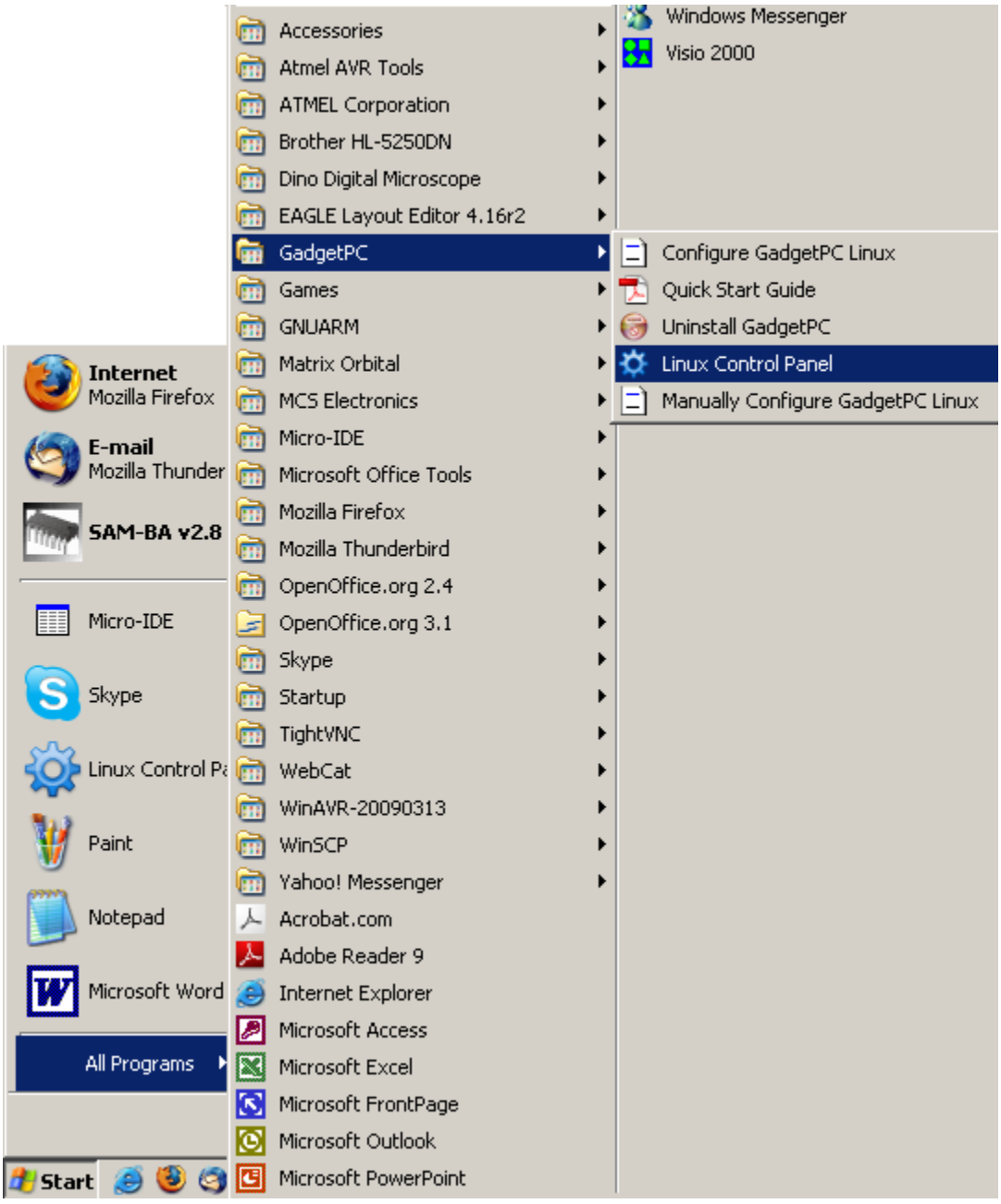


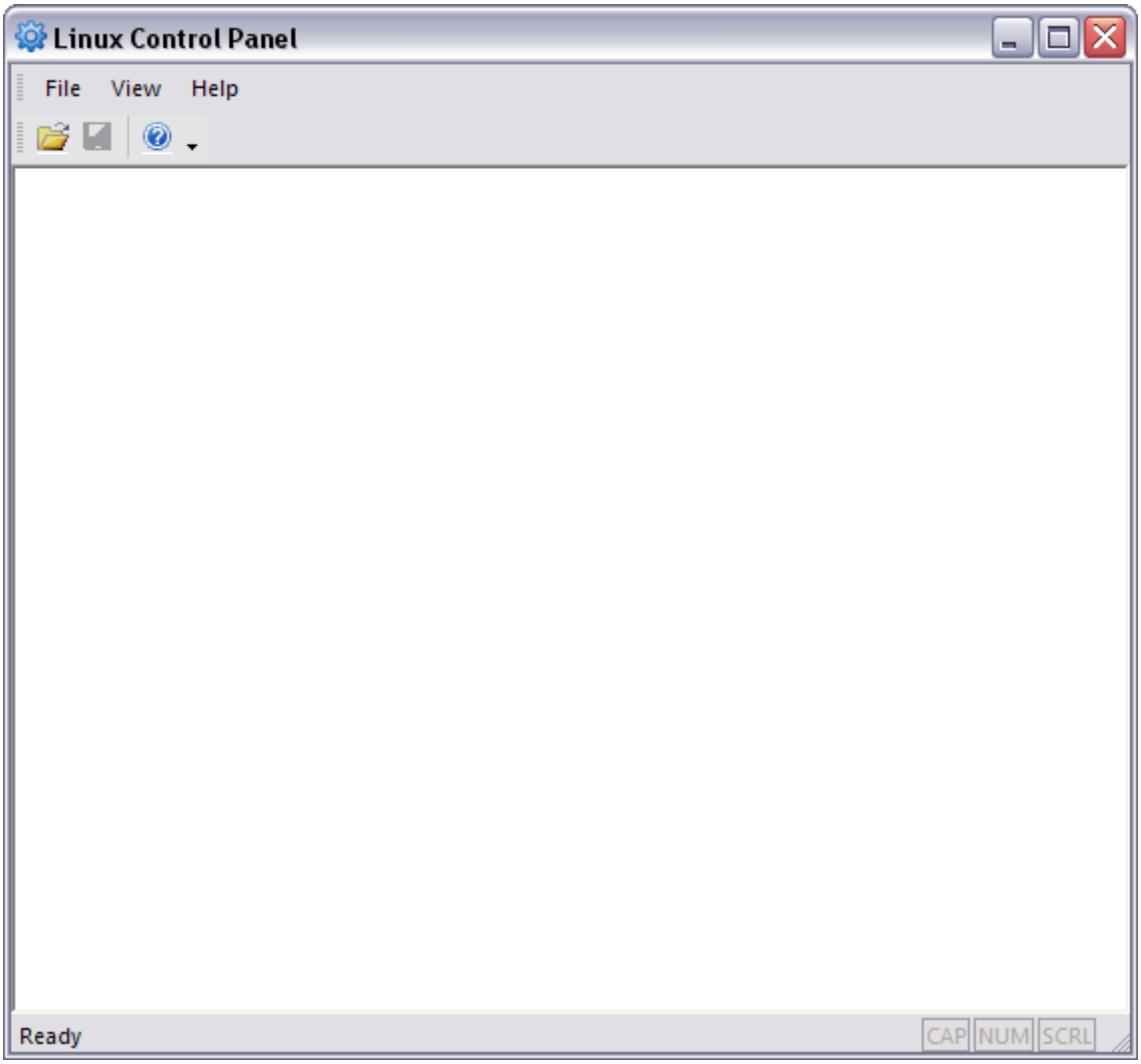

*Figure 1.*

## Software Setup

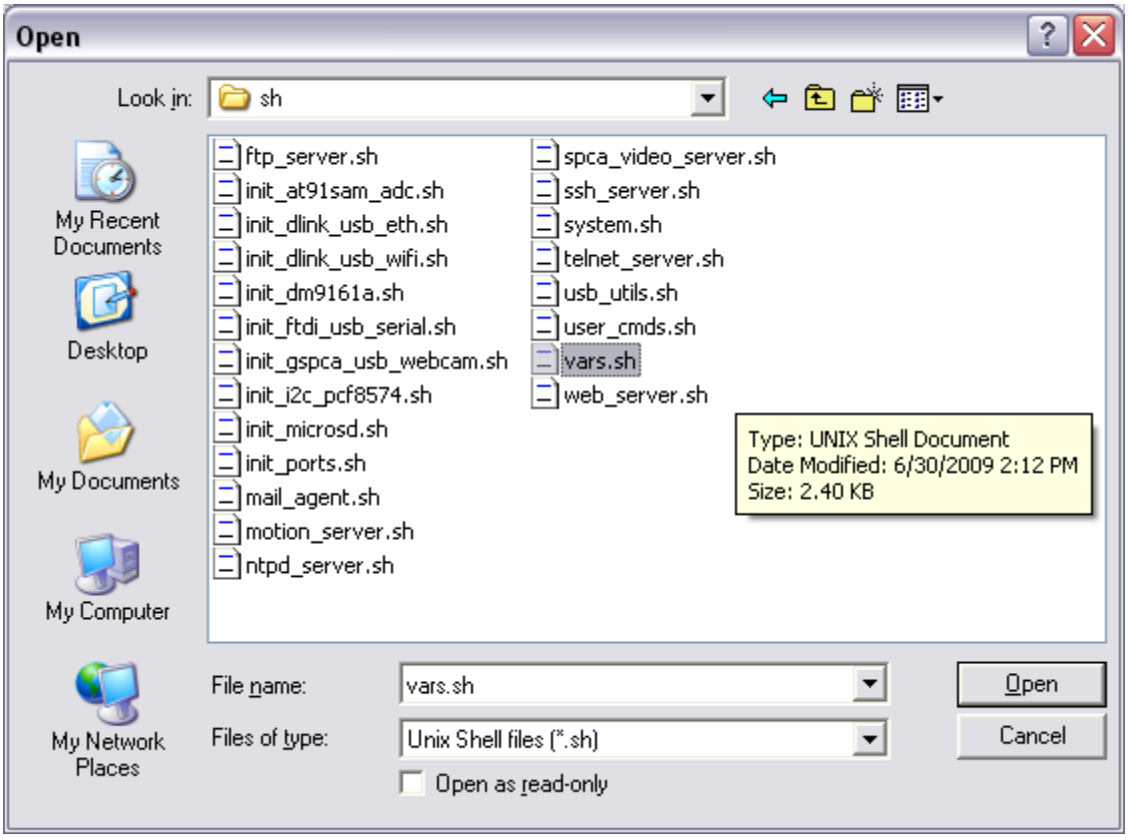
We need to edit the Linux vars.sh file to enable certain configuration options.

1) Open **Linux Control Panel** that comes with GadgetPC setup. (Start Menu -> All Programs -> GadgetPC -> Linux Control Panel)


Internet
Mozilla Firefox
E-mail
Mozilla Thunder
SAM-BA v2.8
Micro-IDE
Skype
Linux Control P
Paint
Notepad
Microsoft Word
All Programs
Start
Accessories
Atmel AVR Tools
ATMEL Corporation
Brother HL-5250DN
Dino Digital Microscope
EAGLE Layout Editor 4.16r2
GadgetPC
Games
GNUARM
Matrix Orbital
MCS Electronics
Micro-IDE
Microsoft Office Tools
Mozilla Firefox
Mozilla Thunderbird
OpenOffice.org 2.4
OpenOffice.org 3.1
Skype
Startup
TightVNC
WebCat
WinAVR-20090313
WinSCP
Yahoo! Messenger
Acrobat.com
Adobe Reader 9
Internet Explorer
Microsoft Access
Microsoft Excel
Microsoft FrontPage
Microsoft Outlook
Microsoft PowerPoint
Windows Messenger
Visio 2000
Configure GadgetPC Linux
Quick Start Guide
Uninstall GadgetPC
Linux Control Panel
Manually Configure GadgetPC Linux

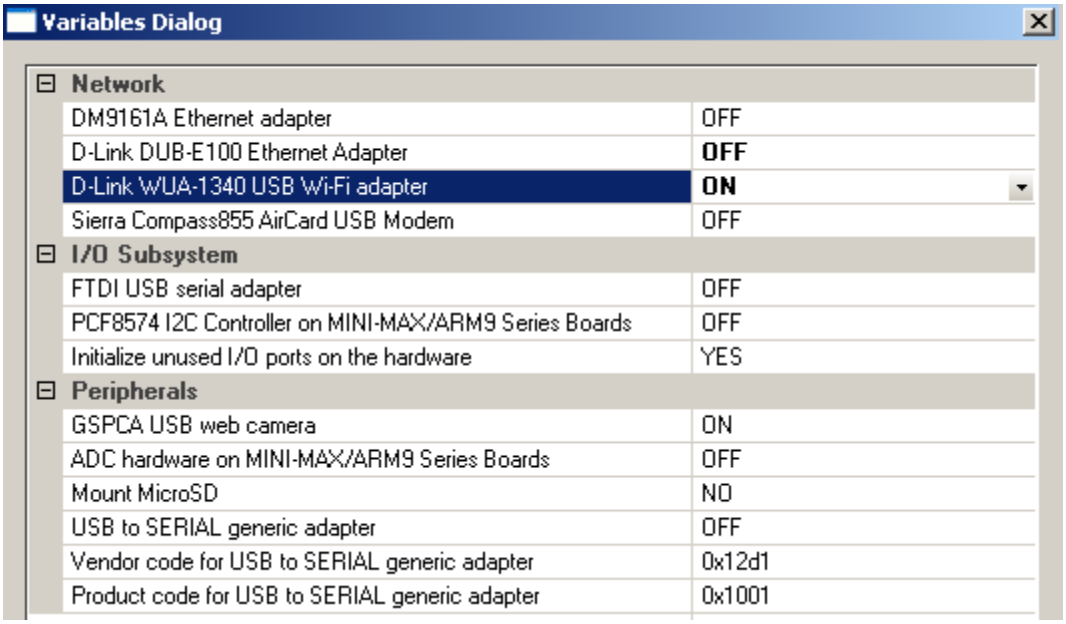



2) Click File -> Open. By default, program will start from folder where GadgetPC was installed. Go to **sh** folder and select **vars.sh** file.



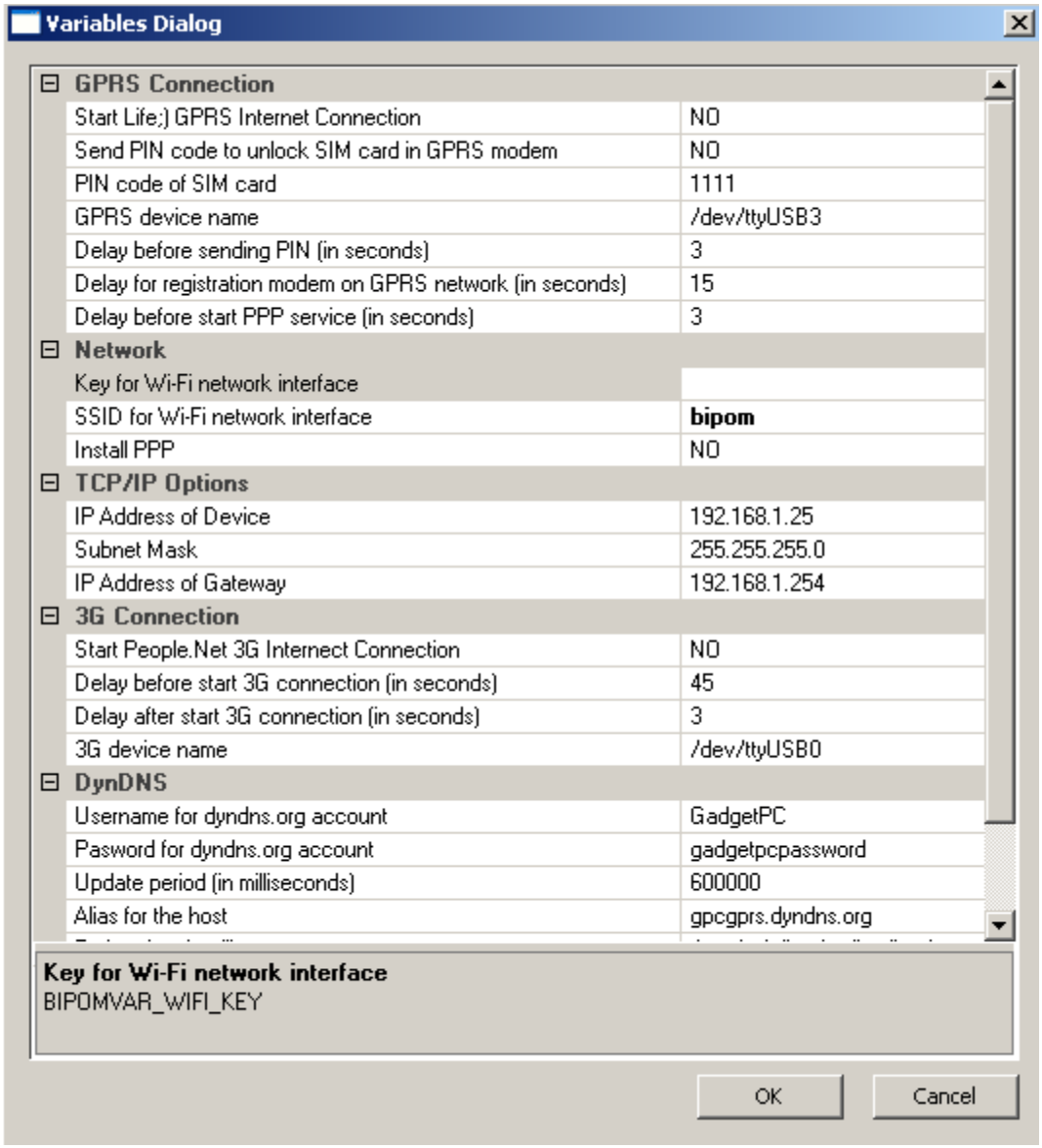


3) Double-click **Hardware and Peripherals** and enable **WUA-1340** (Turned ON) and **GSPCA USB web camera** (Turned ON); If using wired internet, enable **DUB-E100** and disable **WUA-1340**.

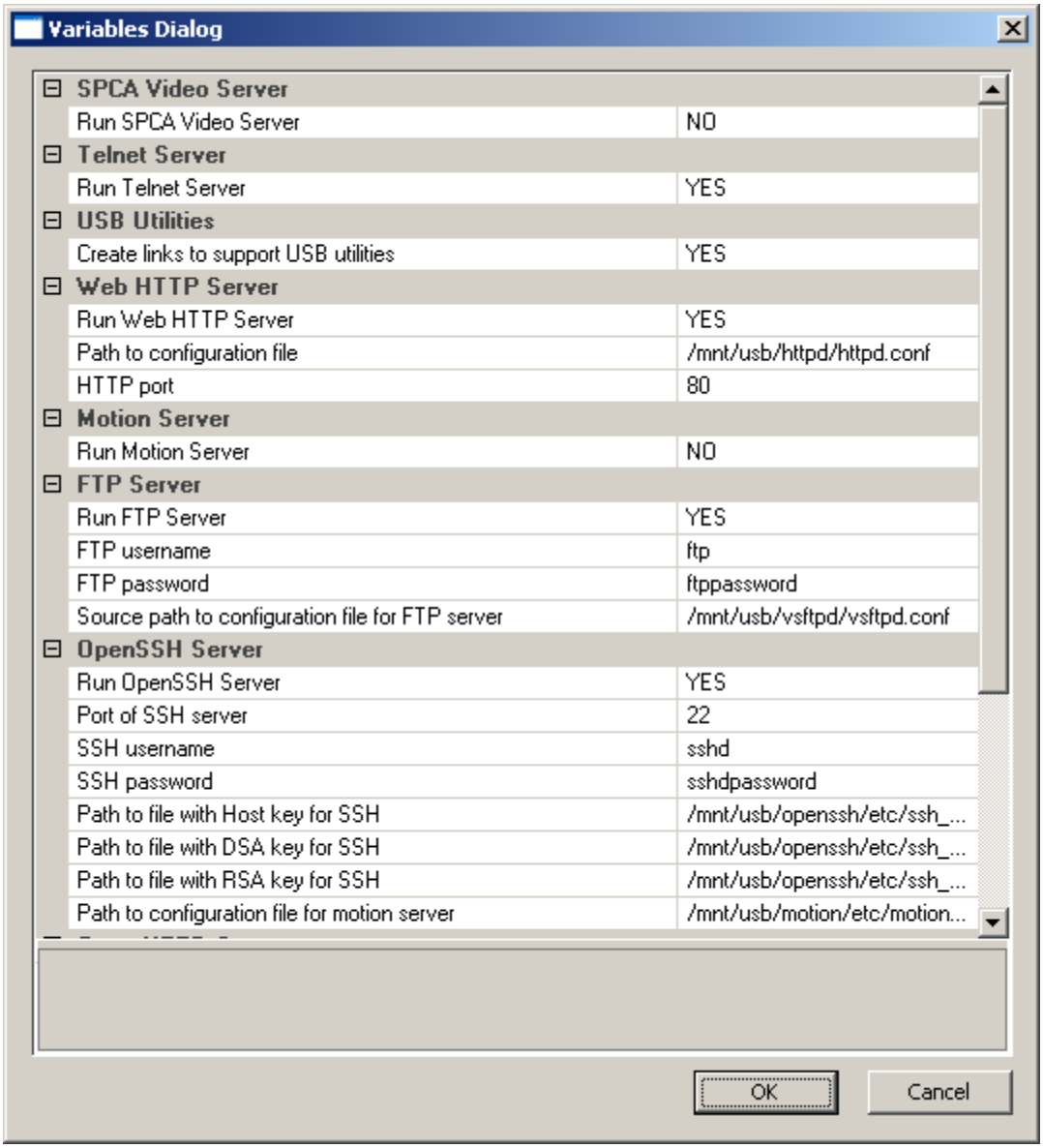



4) Double-click **Network** and type in your **SSID** and **Key** under **Network** for your Wi-Fi interface (only for wireless).

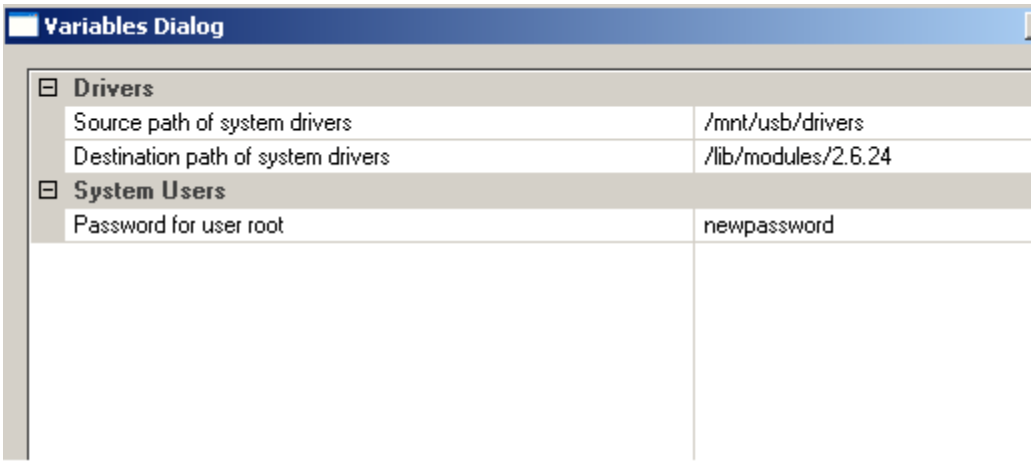
5) Assign an IP address, subnet mask, and gateway IP address under **TCP/IP Options**.




5) Double-click **Software** and enable **Run Web HTTP Server** (set to YES) and assign a **HTTP port** (default: 80).




6) Double-click **System** and assign a root password.



7) Save the **vars.sh** file.

**NOTE:** Every time you access **vars.sh** file, you either need to have a temporary copy on your computer so that you can replace the actual copy on the USB Flash Drive or remove the USB Flash Drive from the GadgetPC and insert the USB Flash Drive into the computer for direct editing.

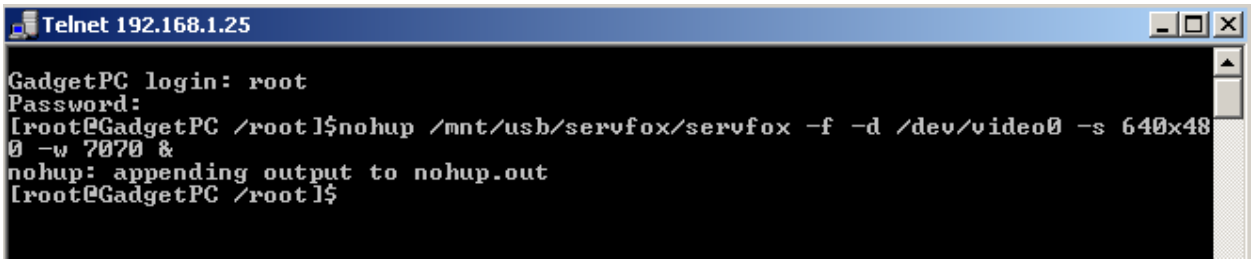
8) Insert the USB Flash drive to GadgetPC.

9) Apply or cycle power to GadgetPC (Turn OFF/ON).

10) After about 30-45 seconds, Linux will boot up and GadgetPC will be ready to record video.

11) Start up **Microsoft Telnet**.

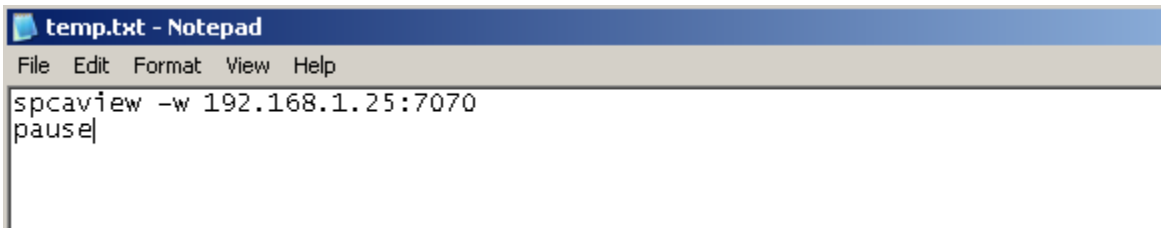
- Connect to the IP address you assigned in Step 4 by typing the following command:
    - open xxx.xxx.xxx.xxx (where xxx.xxx.xxx.xxx is your IP address you assigned to the GadgetPC)
- Sign in with your username and password (default username/password: root/newpassword).
- Initiate **servfox** by typing the following command:
    - nohup /mnt/usb/servfox/servfox -f -d /dev/video0 -s 640x480 -w 7070 &
        - § The dimensions of the webcam image can be adjusted by changing the value of 640 x 480 to desired value.



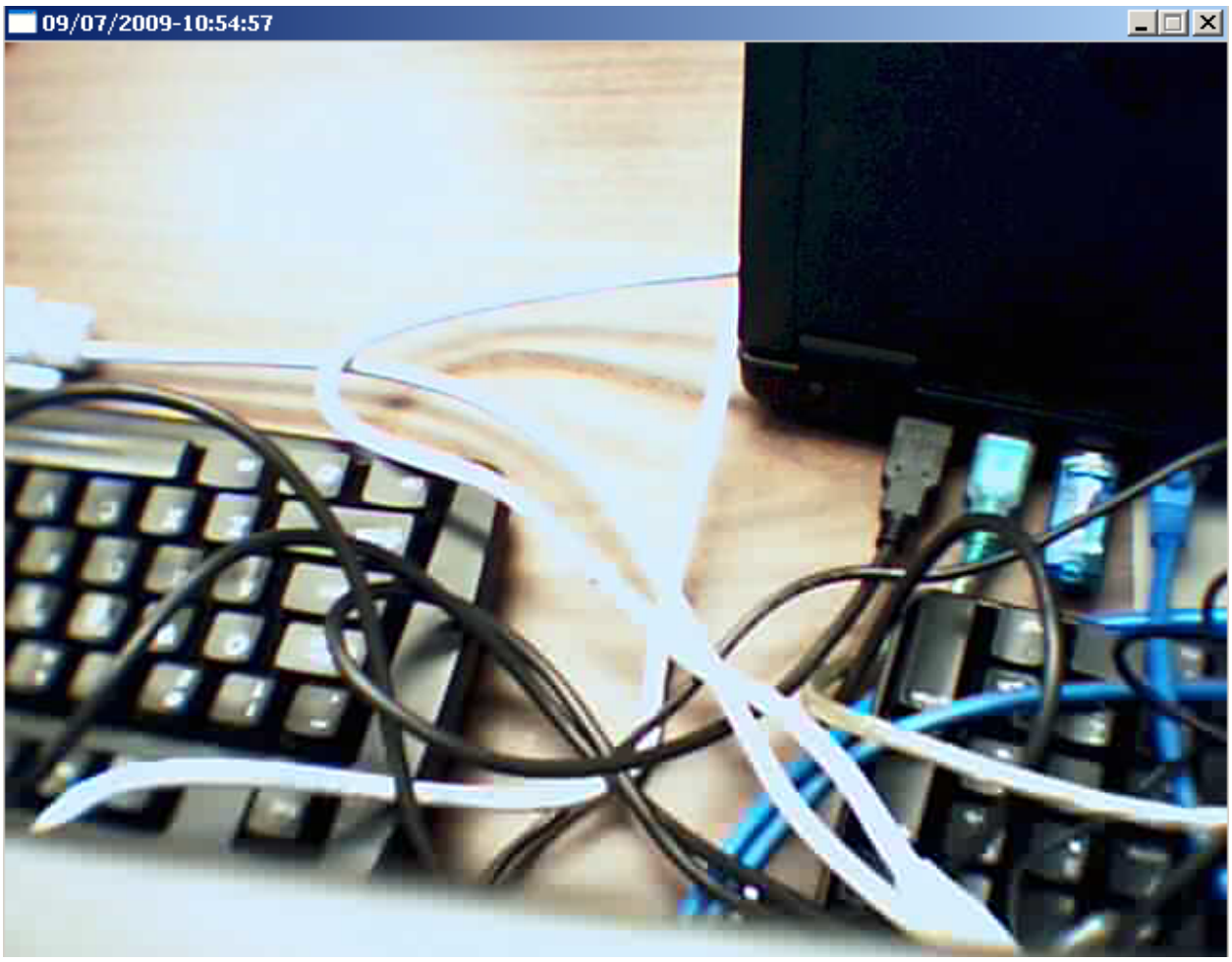

Now, there are two methods to view the camera image:

12a) **Method 1:** Run spcaview.exe.

- Copy over spcaview.exe and SDL.dll into desired folder.
- Create a temporary batch file.
    - Create a new text file “temp.txt”.
        - § Edit txt with notepad with the following lines:
            - spcaview -w xxx.xxx.xxx.xxx:7070 (where xxx.xxx.xxx.xxx is your IP address)

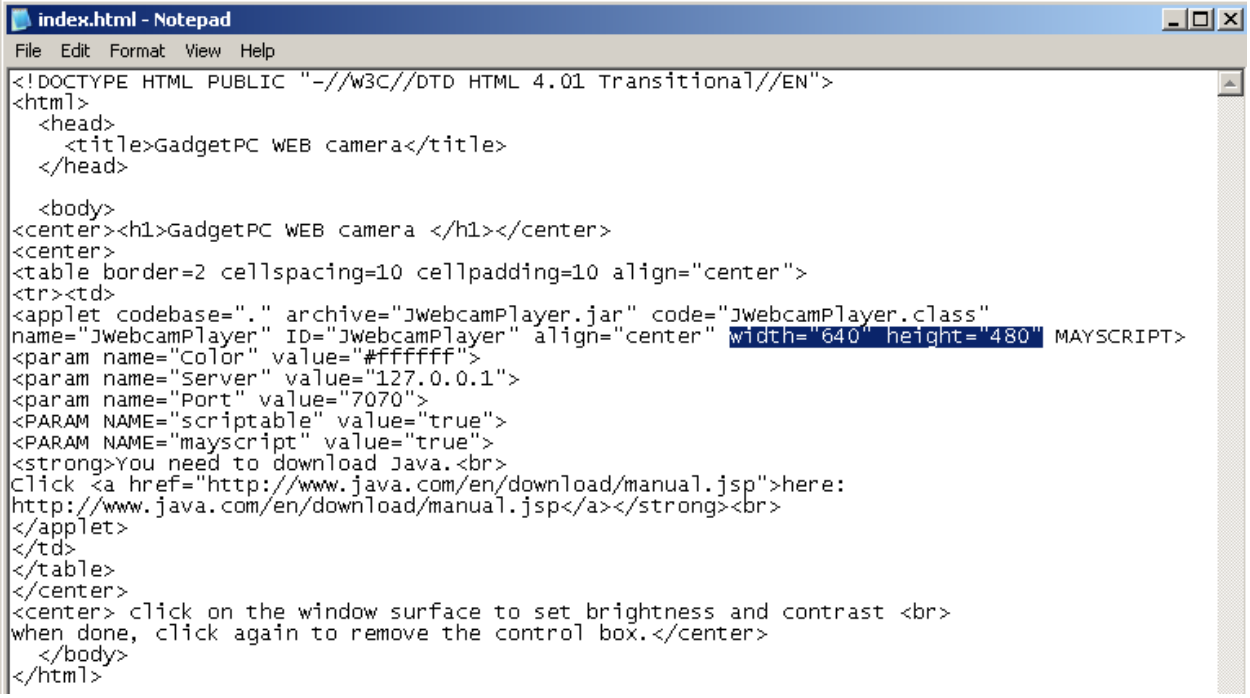



- Rename temp.txt to “temp.bat”.
- Run “temp.bat”.

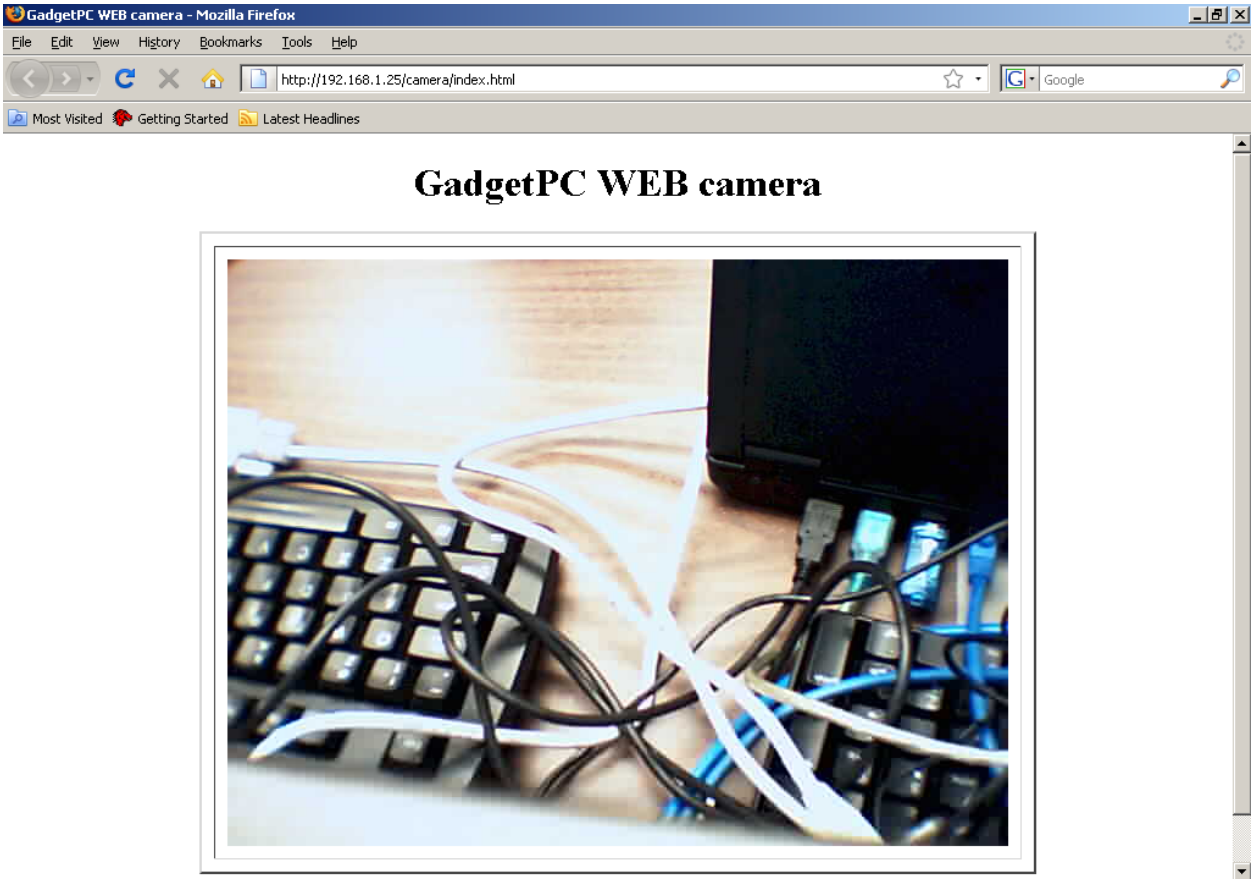



12b) **Method 2:** Embedded browser view

- Edit the file: \myweb\camera\index.htm
  - Change dimensions to match **servfox** dimensions (in our case – 640 x 480).




- Save the file.
- **Reminder: servfox** should be still be running; if you had to reboot Linux or remove the USB Flash Drive to edit files, repeat Step 8.
- Open up an internet browser that is connected to the same network as GadgetPC.
    - Type the url: http://xxx.xxx.xxx.xxx/camera/index.htm (where xxx.xxx.xxx.xxx is your IP address)


GadgetPC WEB camera - Mozilla Firefox
File Edit View History Bookmarks Tools Help
http://192.168.1.25/camera/index.html
Google
Most Visited Getting Started Latest Headlines
GadgetPC WEB camera

## GadgetPC - Witness Camera

### Overview

An interesting application of GadgetPC is as a witness camera in cars and trucks. Since GadgetPC is a very low power computer, it is an attractive alternative to full powered PC's in automotive environment. As such, GadgetPC can continue to record video of your car's front view, rear view, side views or combinations of these around the clock, even when the car is not running.

### Parts Required

1 x GadgetPC
1 x Car Power Adapter
1 x DUB-E100 Ethernet card or WUA-1340 Wi-Fi card
1 x Ethernet Cable (if using DUB-E100)
1 x USB Flash Drive to run Linux (optional)
Up to 4 x Webcam (see supported hardware)