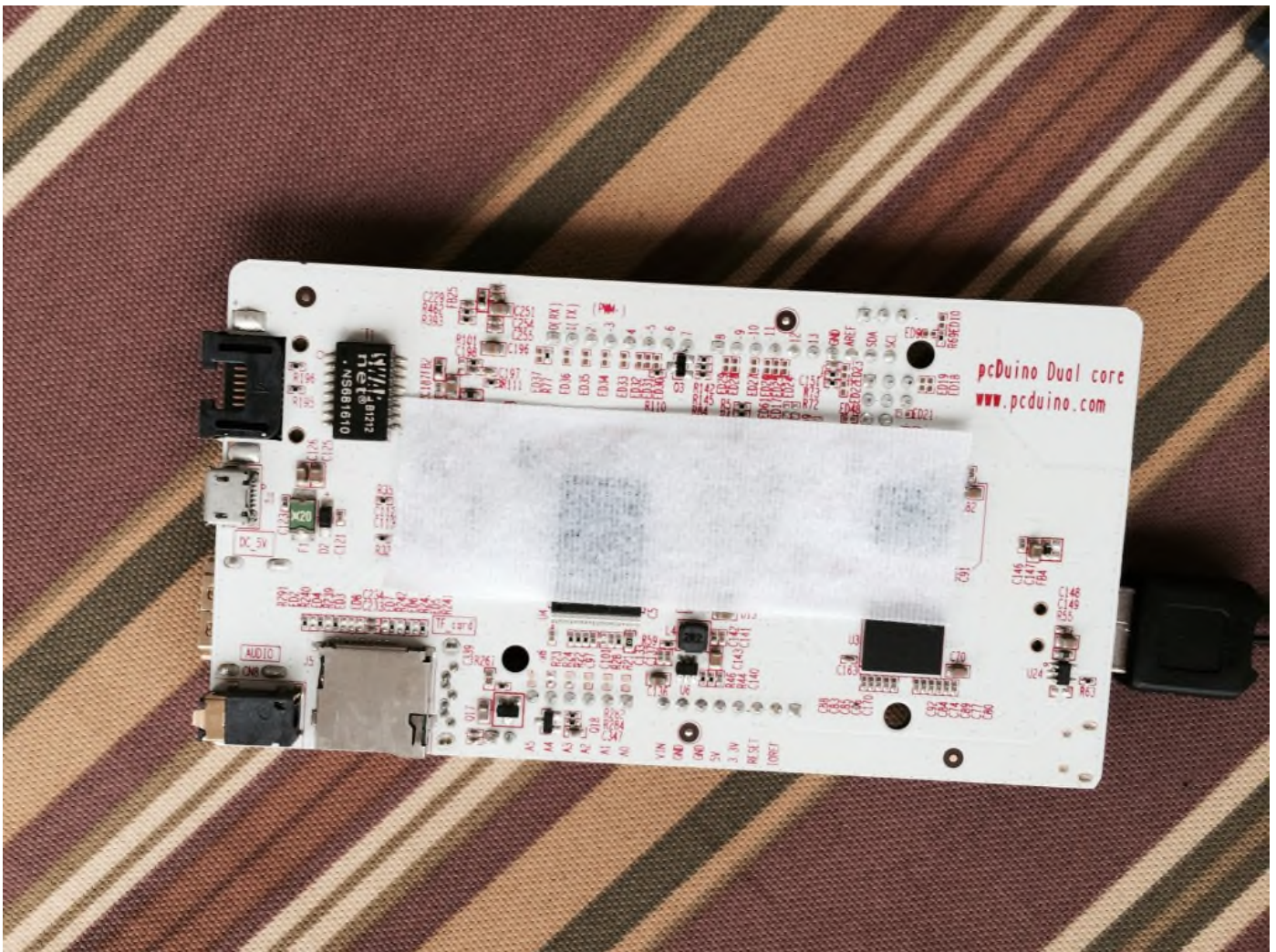
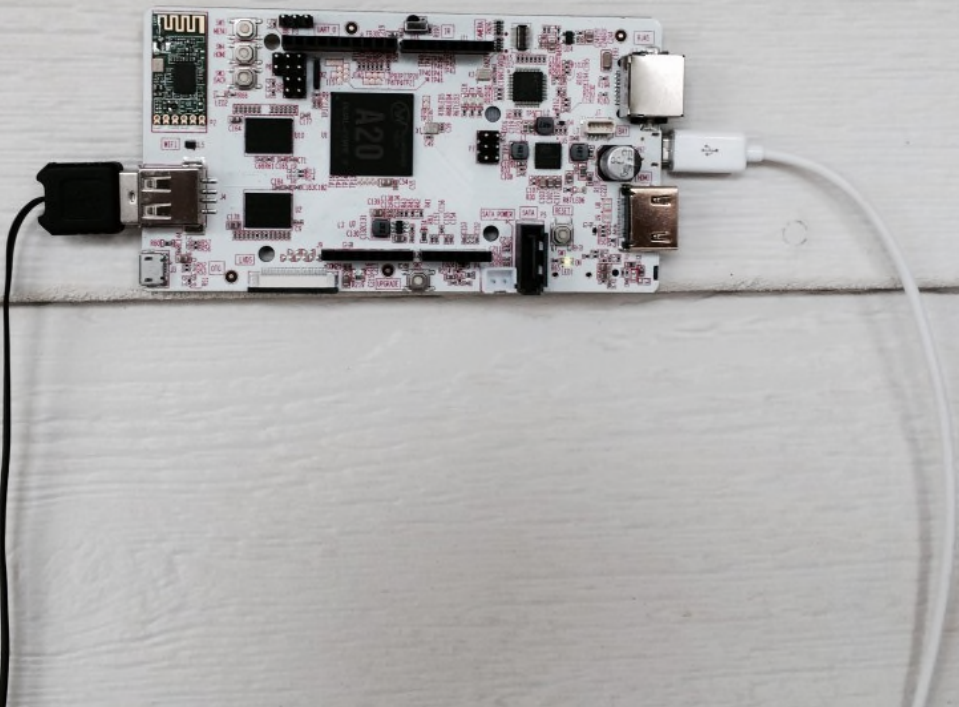
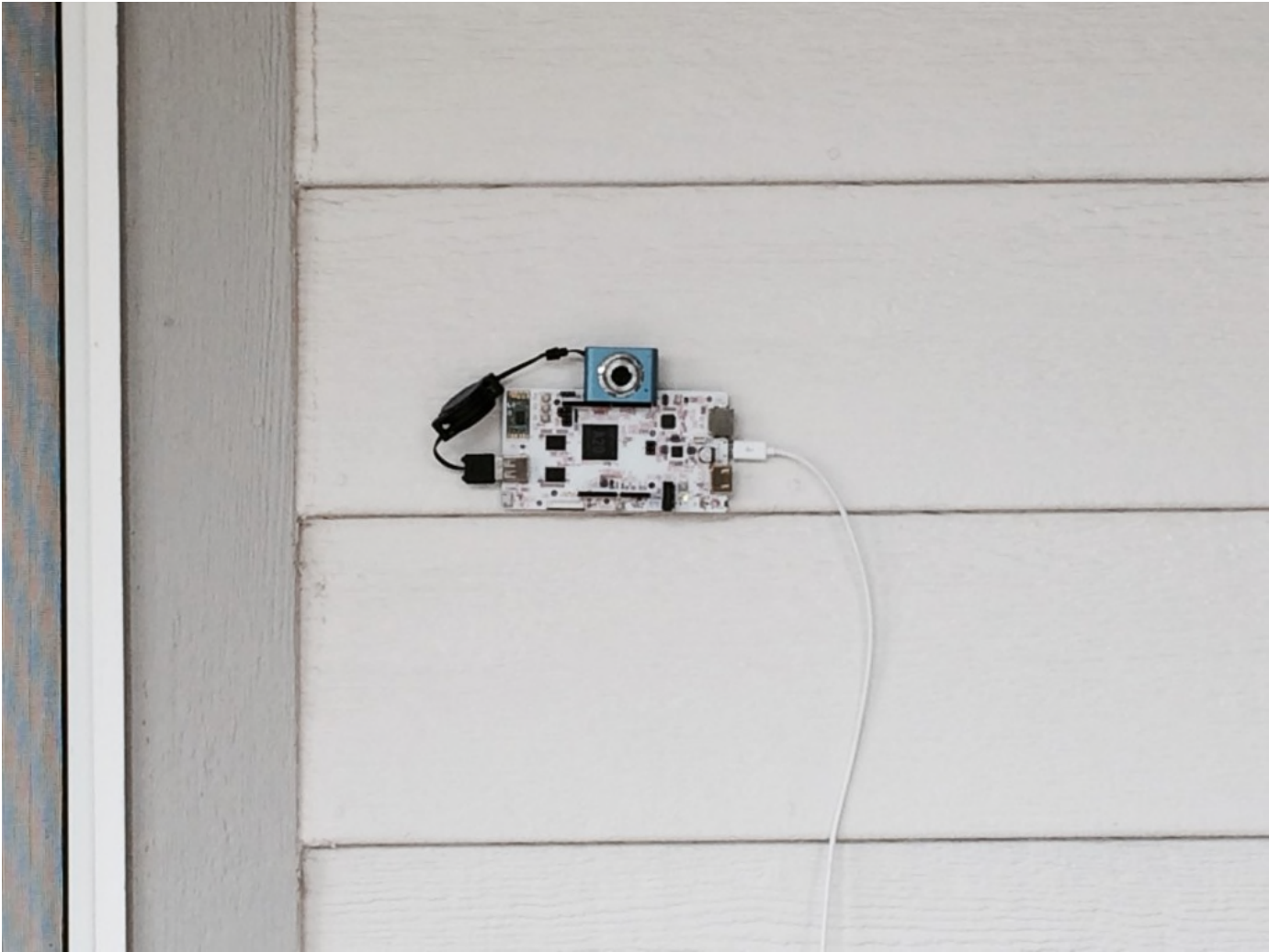


Create Time Lapse Video using pcDuino3 with USB Camera

Time is flying. Its fallen already. We would like to create a time lapse video recording the season changes when tree leaves are still green to Colorado's first snow. Time lapse video consists of a serial of pictures that are taken at certain intervals. We install the pcDuino3 with the USB camera in our backyard :







Snapshot

The first thing we need to figure out is how to take a snapshot using pcDuino. Well, there are a number of ways. One way is to use `fswebcam` (which can be installed using `$sudo apt-get install fswebcam`). We tried `fswebcam`. However, we got problem that sometimes the picture captured has a large area of dead pixels. So we use another snapshot tool `'steamer'`. It can be installed on pcDuino3 using:

```
1 $sudo apt-get install steamer
```

To take a picture, simply use:

```
1 $steamer -f jpeg -o image.jpeg
```

Script to take snapshot and name it using time stamp

As each picture needs to be named sequentially using time stamp, we use a bash script as following:

```
1  #!/bin/bash
2
3  DATE=$(date +"%Y-%m-%d_%H%M")
4
5  streamer $DATE.jpg
```

We name the newly created script as camera.sh. To make it executable, we need to do:

```
1  $chmod +x camera.sh
```

Repeatedly take snapshot at certain interval

To make time laps video, we need to take pictures repeatedly. pcDuino3 has a cron function to execute task at certain time. Please refer to "Use the Crontab Timing Task on pcDuino.pdf"

We use

```
1  $crontab -e
```

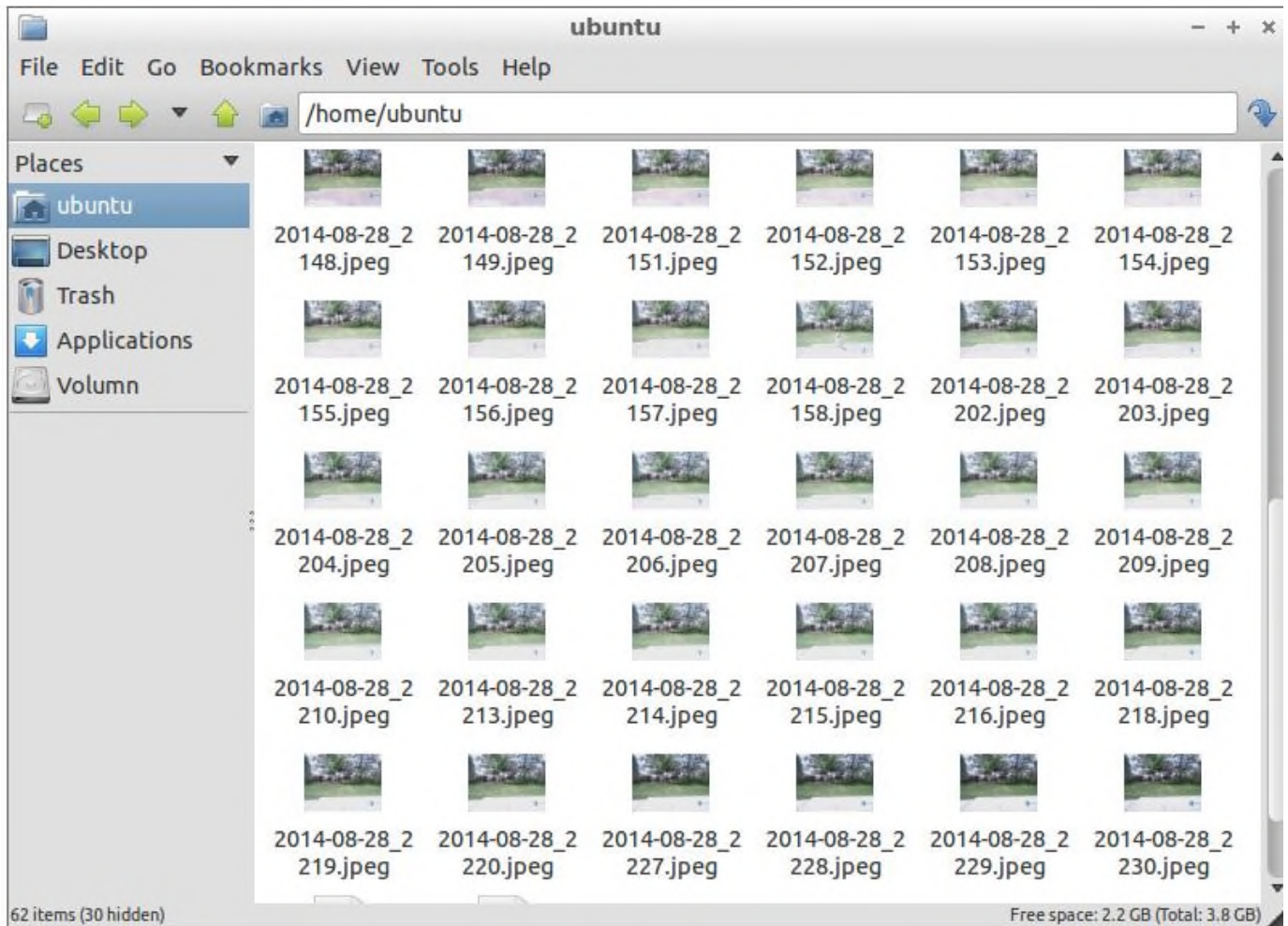
to add new task.

We would like to take the picture every minute, so we add the following line:

```
<code>* * * * * /home/ubuntu/camera.sh
```

```
</code>
```

After tens of minutes, we will get many pictures:



Make time lapse video

In the end, we would like to merge all these pictures into a video. We will use a tool called mencoder, which can be installed using :

```
1 $sudo apt-get install mencoder
```

There are so many picture. We can get the filenames by doing the following trick :

```
1 %ls *.jpeg > stills.txt
```

Then we execute mencoder as :

```
1 $mencoder -nosound -ovc lavc -lavcopts vcodec=mpeg4:aspect=16/9:vbitrate=8000000 -vf  
scale=1920:1080 -o timelapse.avi -mf type=jpeg:fps=24 mf://@stills.txt
```

timelapse.avi is the video we want