

IMAGE ACQUISITION TOOLBOX AND WEB CAMERA

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Very simple and useful application of the Image Acquisition Toolbox and common web camera brings simple program presented in this paper. Web camera connected to PC via USB interface is monitoring space of interest and program compares next images on principle of the correlation coefficient. If there is significant change in the correlation between images, the suspicious image is saved even with the time information. This algorithm is useful for example in a night control of selected objects. The listing of the program follows.

```
% programme watcher
clear all
teta=videoinput('winvideo');    % we connect to a Windows web kamera under name teta
preview(teta)                  % we activate a live video preview window
teta.FramesPerTrigger=1;      % we want acquire 1 frame
start(teta);
[g,t]=getdata(teta);
b=g(:,1);                      % the first picture used for correlation named b
k=0;
while k<100                    % number of pictures * period of acquiring = time of watching
    start(teta);
    [g,t]=getdata(teta);       % transfer of acquired images into the MATLAB workspace
    obraz=g(:,1);             % the acquired image is named obraz
    r=corr2(b,obraz);         % the correlation between last two images
    if r<0.90                 % decision if change is significant from the level of correlation
        jmeno=sprintf('obraz_cislo_%d',k);
        save(jmeno,'obraz');   % saving the suspicious image named obraz_cislo_k
    end
    imshow(obraz)             % or you can use older function imview()
    b=obraz;
    k=k+1;
    pause(1);                 % the period of acquiring images in seconds
end
```

To open saved image named for example *obraz_cislo_22.mat* one must write in the MATLAB

```
>> load obraz_cislo_22
```

```
>> imshow(obraz)
```

The presented program can everybody change for his own purpose.