

Camera integration to openHAB with UPnP



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Plan

- Context
- Binding creation and contribution
- Motion detection
- Encountered problems
- Improvements

Context

- openHAB
- Eclipse smarthome

Context

Detect camera with UPnP in openHAB

Continue last year project

Contribute to openHAB

Motion detection

Binding creation and contribution

- created a new binding
- added features to be relevant in a contribution
- remote control for camera

Binding creation and contribution

Configuration Parameters

Configure parameters for the thing.

Unique Device Name

bc329e00-1dd8-11b2-8601-28107b13b27e

The UDN identifies the camera.

Username

admin

The username for authentication to camera

Command request URL repertory

/cgi/ptdc.cgi?command

Link for command request in URL

Connection refresh

30

Specifies the refresh interval in seconds



Password

azerty

The password for authentication to camera

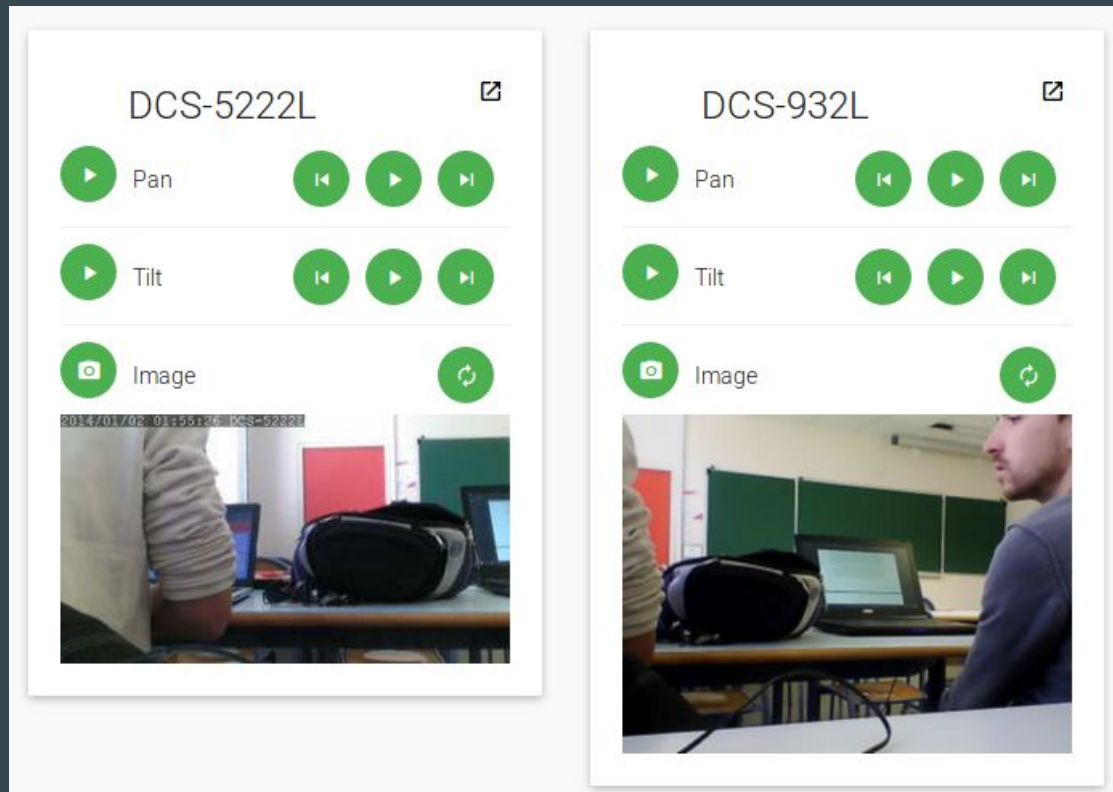
Image request URL repertory

/image/jpeg.cgi

Link for image request in URL

Binding creation and contribution

Control panel



Binding creation and contribution

 Created a pull request in [openhab/openhab2-addons](#) that received 1 comment

Initial contribution of the DLink UPnP camera binding

Hi, this is the initial contribution of the DLink UPnP camera binding. This binding discovers on the local network D-Link cameras with the UPnP pro...

Motion detection

How it works

- Receiving a video stream
- Image processing

Library

- OpenCV

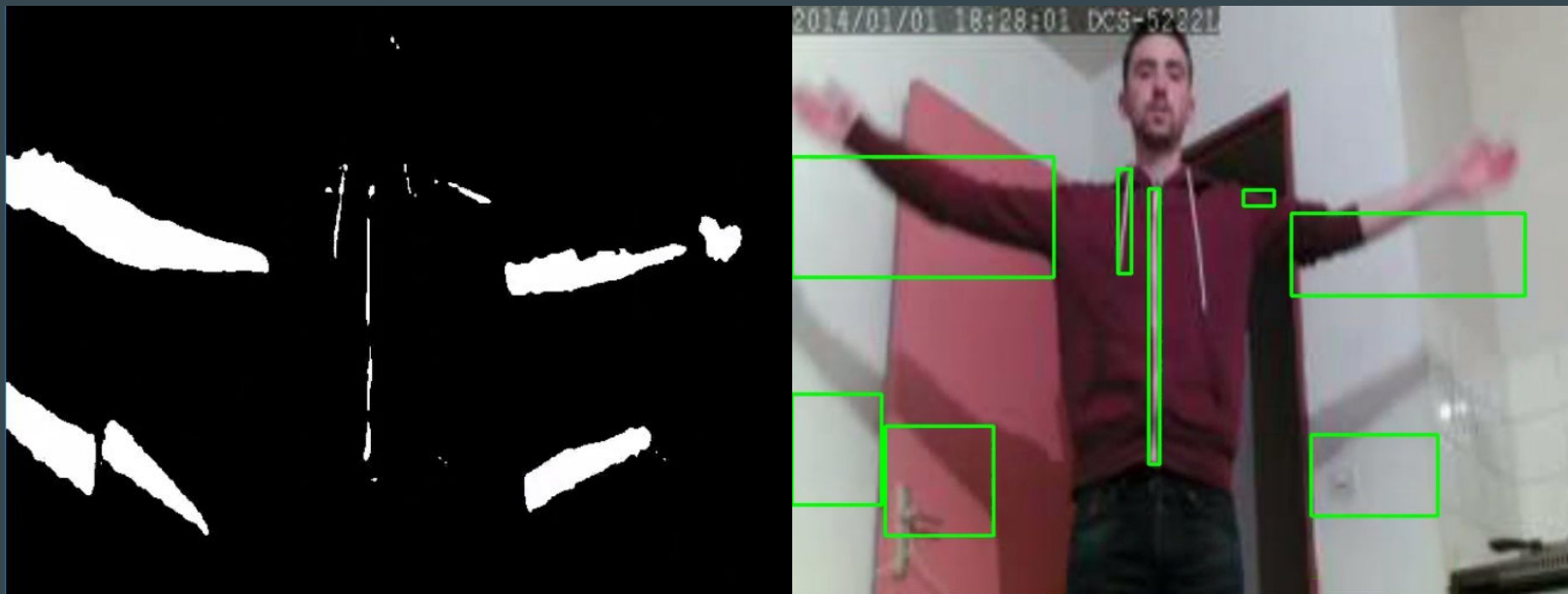
Image processing

- Grayscale
- Filtering by a Gaussian function
- Subtracting Images
- Binary image (Black or White)
- Creating outlines
- Creating rectangles

Motion detection



Motion detection



Motion tracking

How it works

- Using motion detection
- It centers on all detected movements
- HTTP request sent to camera to control it

Encountered problem

- Follow-up latency

Encountered problems

- Cameras configuration
- Installation of OpenHAB
- Documentation on openHAB isn't complete

Improvements

- Use motion tracking to monitor an area with an e-mail alert
- Integration of motion detection in openHAB
- Improve the binding