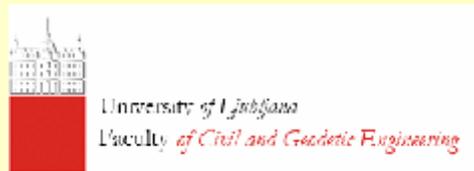




# Cost effective system for monitoring fish migration with a camera

Matej SEČNIK, Andrej VIDMAR



**Ljubljana, 23 October 2015**

# Fish passes on Ljubljanica



# FishCam location



# Advantages and disadvantages



Advantages and disadvantages of using camera monitoring compared to commonly used RFID tagging

## Advantages:

- non invasive method
- detects all passing fishes
- low cost

## Disadvantages:

- camera needs regular cleaning
- poor performance in dirty water
- Image processing could be time consuming
- it is difficult to identify exact fish size and weight from the photo

# Camera components



# Camera components



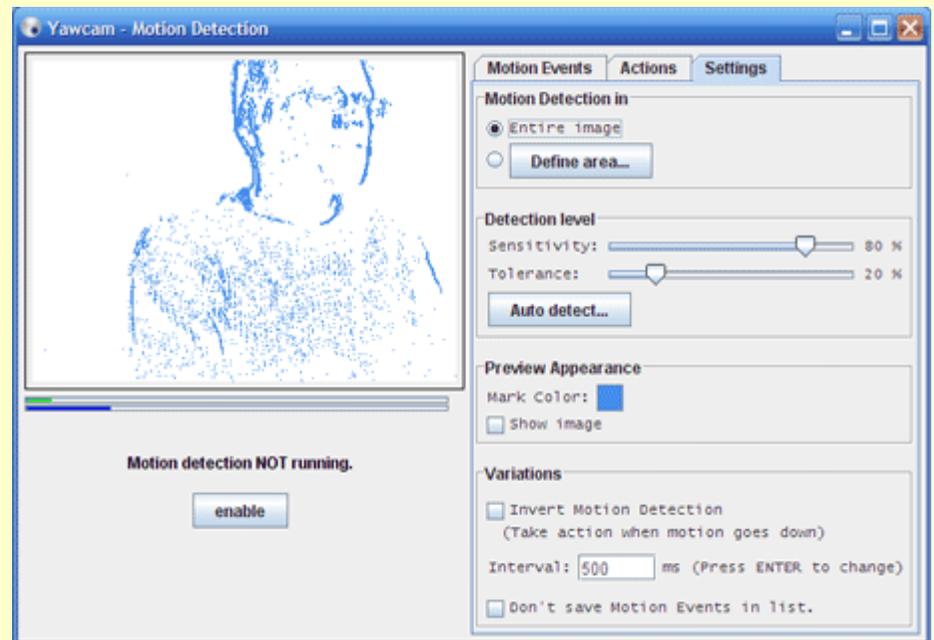
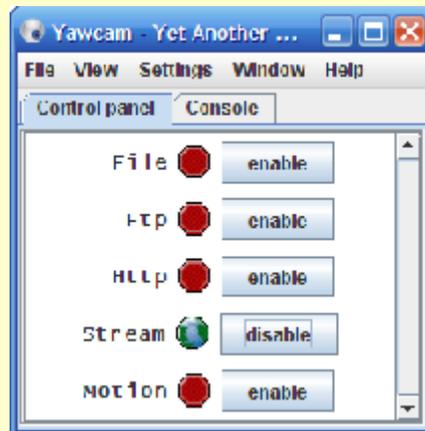
## Sony Camera

- IR Sensitive
- Very sensitive in low light conditions (0.001 Lux)

## IR Lightning

- night recording
- IR led diodes

# Software used to detect fishes



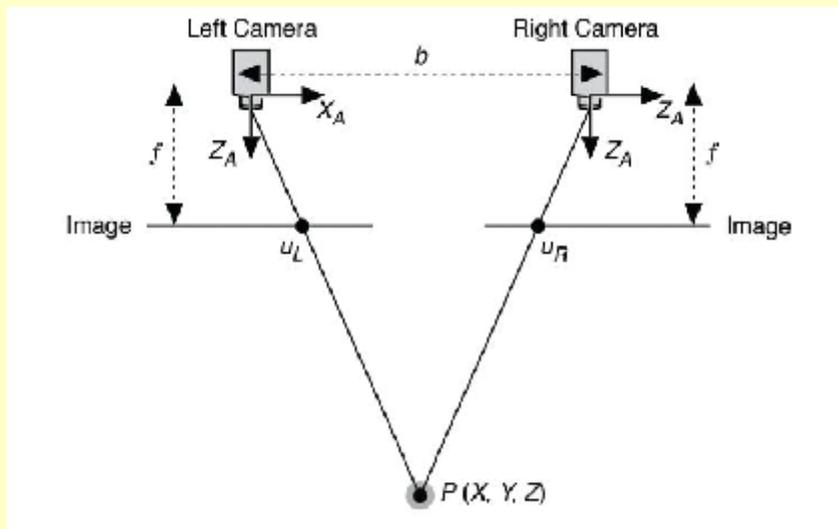
# Camera upgrade



Disadvantage:

- it is difficult to identify fish size from the picture

Stereovision



# Monitoring results



Danube salmon (*Hucho hucho*)



# Monitoring results



Klen (*Squalius cephalus*)



Mrena (*Barbus barbus*)



Rdečoeka (*Rutilus rutilus*)



Zelenika (*Alburnus alburnus*)



Pisanka (*Alburnoides bipunctatus*)



Potočna mrena (*Barbus balcanicus*)

# Monitoring results

