

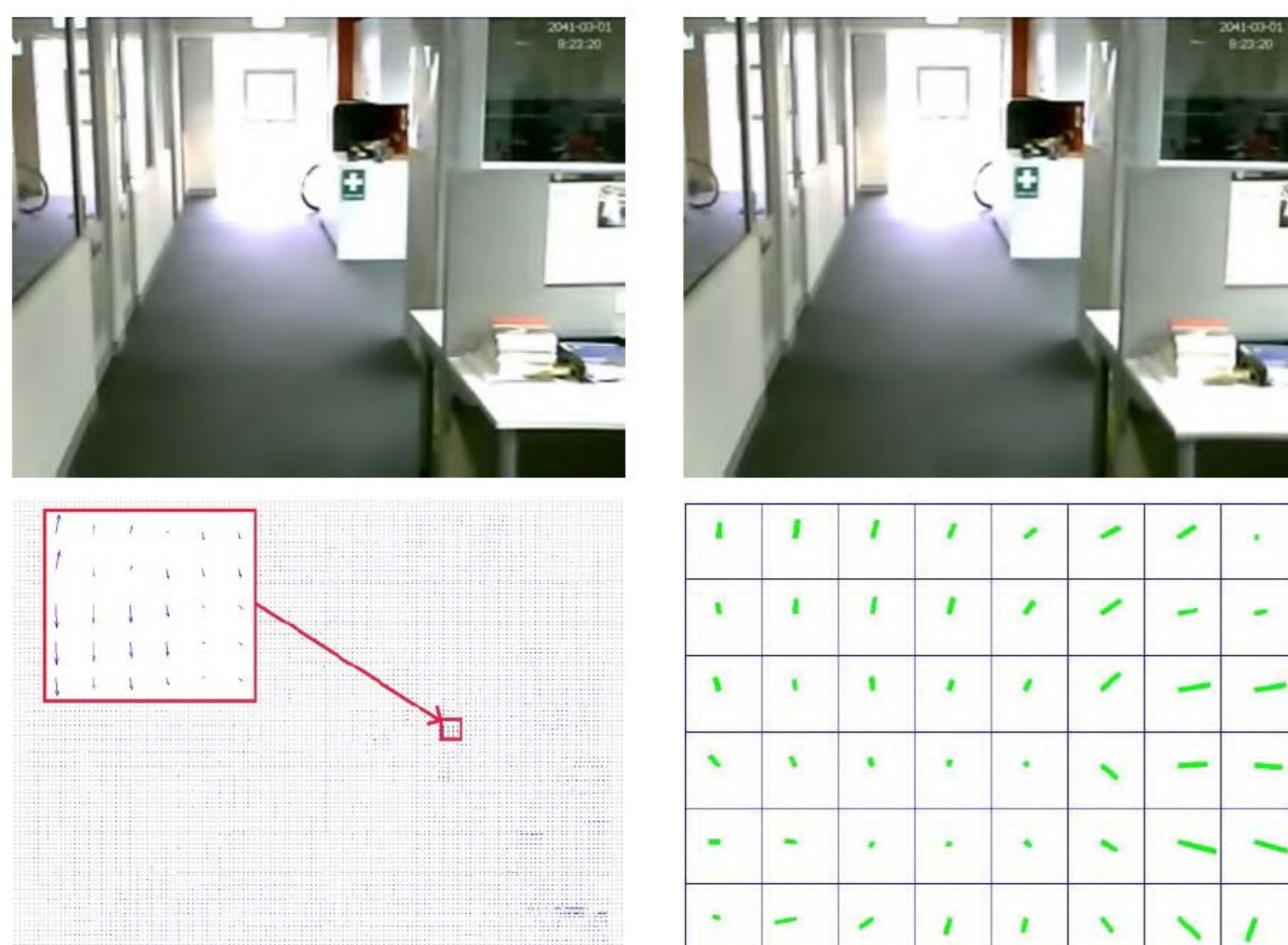
## Introduction

- A novel approach of activity recognition using the video recorded from a wearable camera.
- The objective is to recognise the user's activities from a tiny front-facing camera embedded in user's glasses.

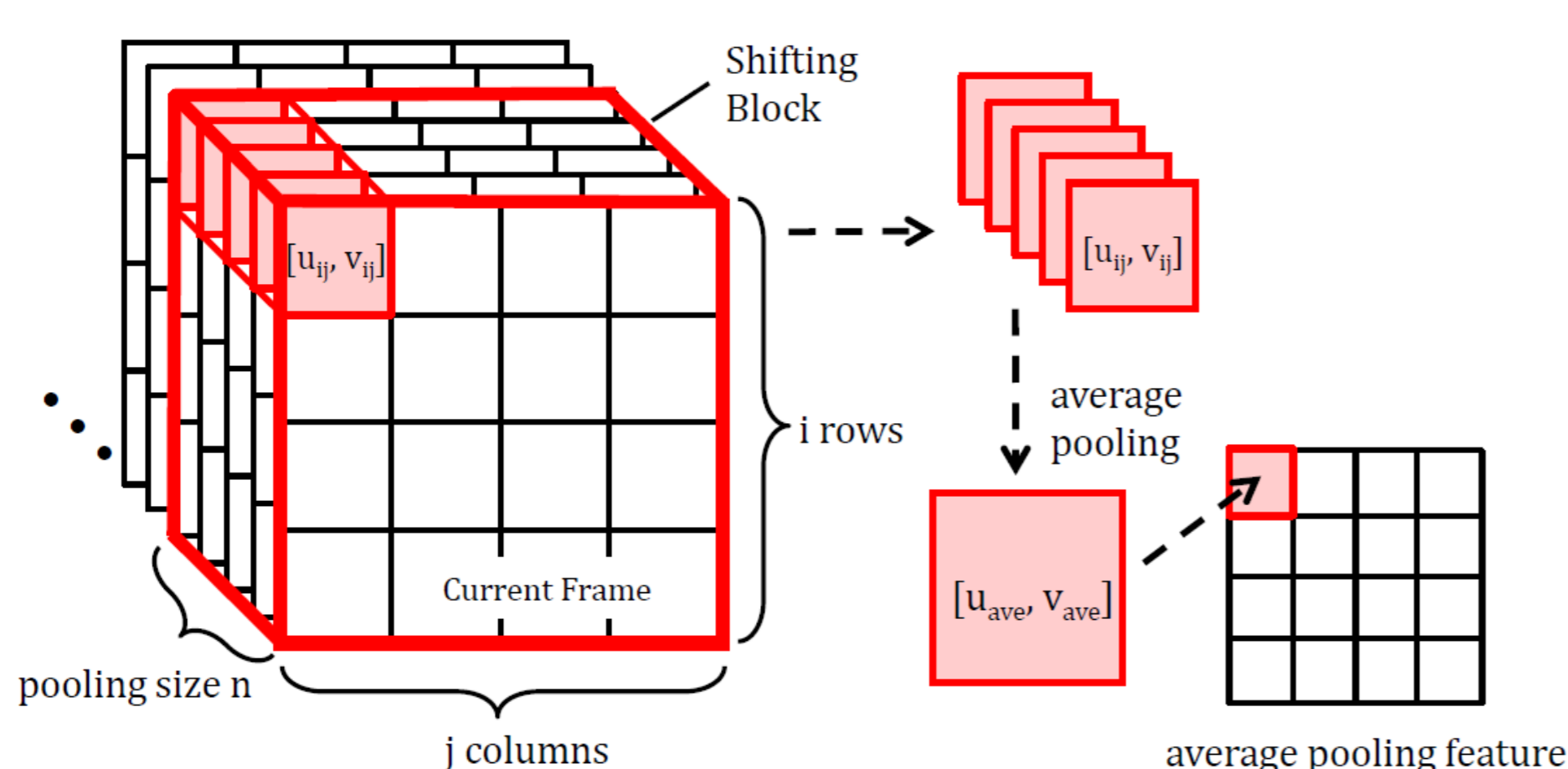


- Our system allows caretakers to remotely access the current status (activities) of a specified person.
- Apply to:
  - ✓ General fitness training
  - ✓ Elderly people stayed alone
  - ✓ Patients under rehabilitation treatment
  - ✓ People requiring cognitive assistance or guidance on daily activities.

## Video Collection and Feature Extraction

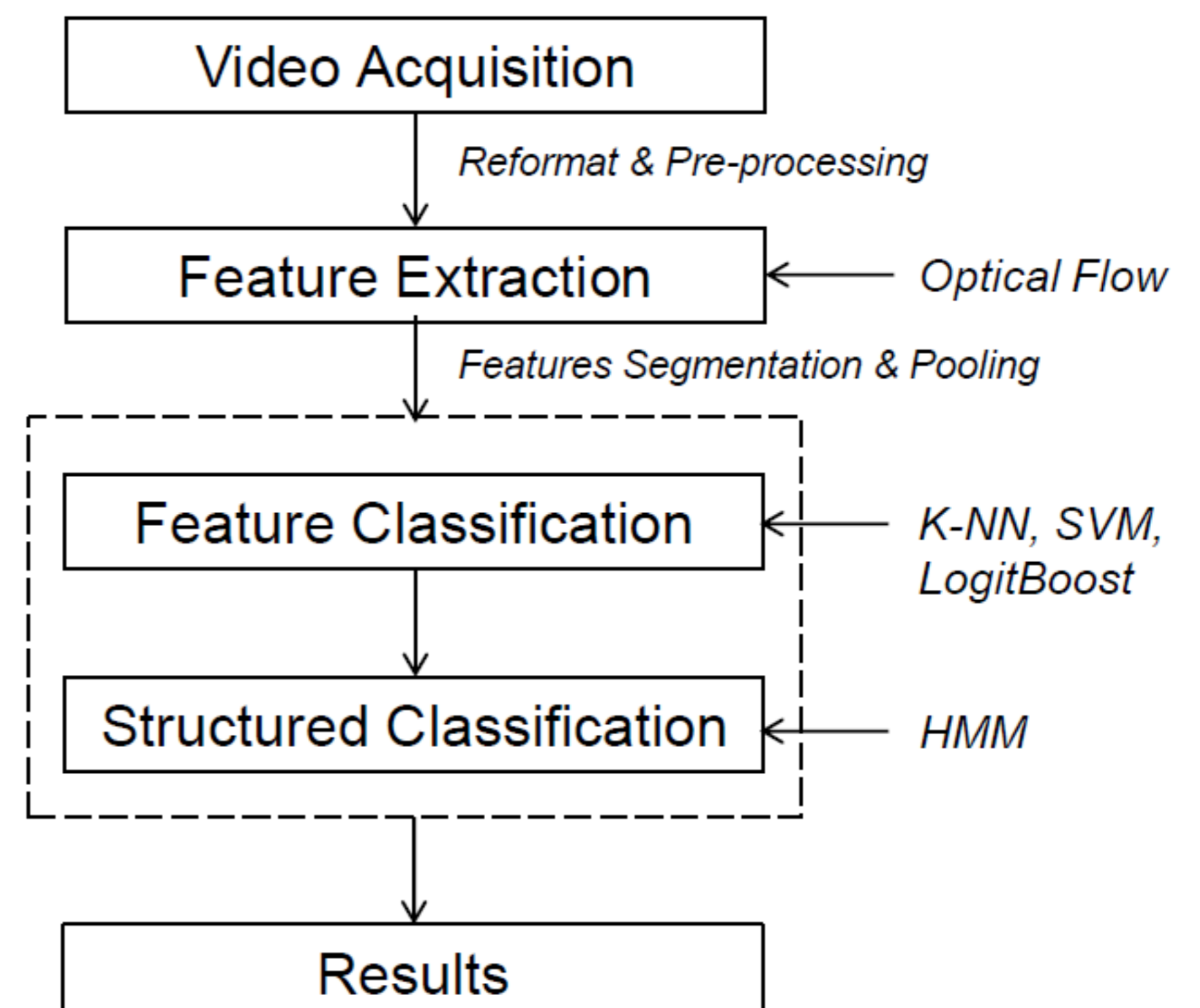


- We use Lucas Kanade Optical Flow as the primitive feature extraction method.
- Followed by Average Pooling of consequence of Images Patches

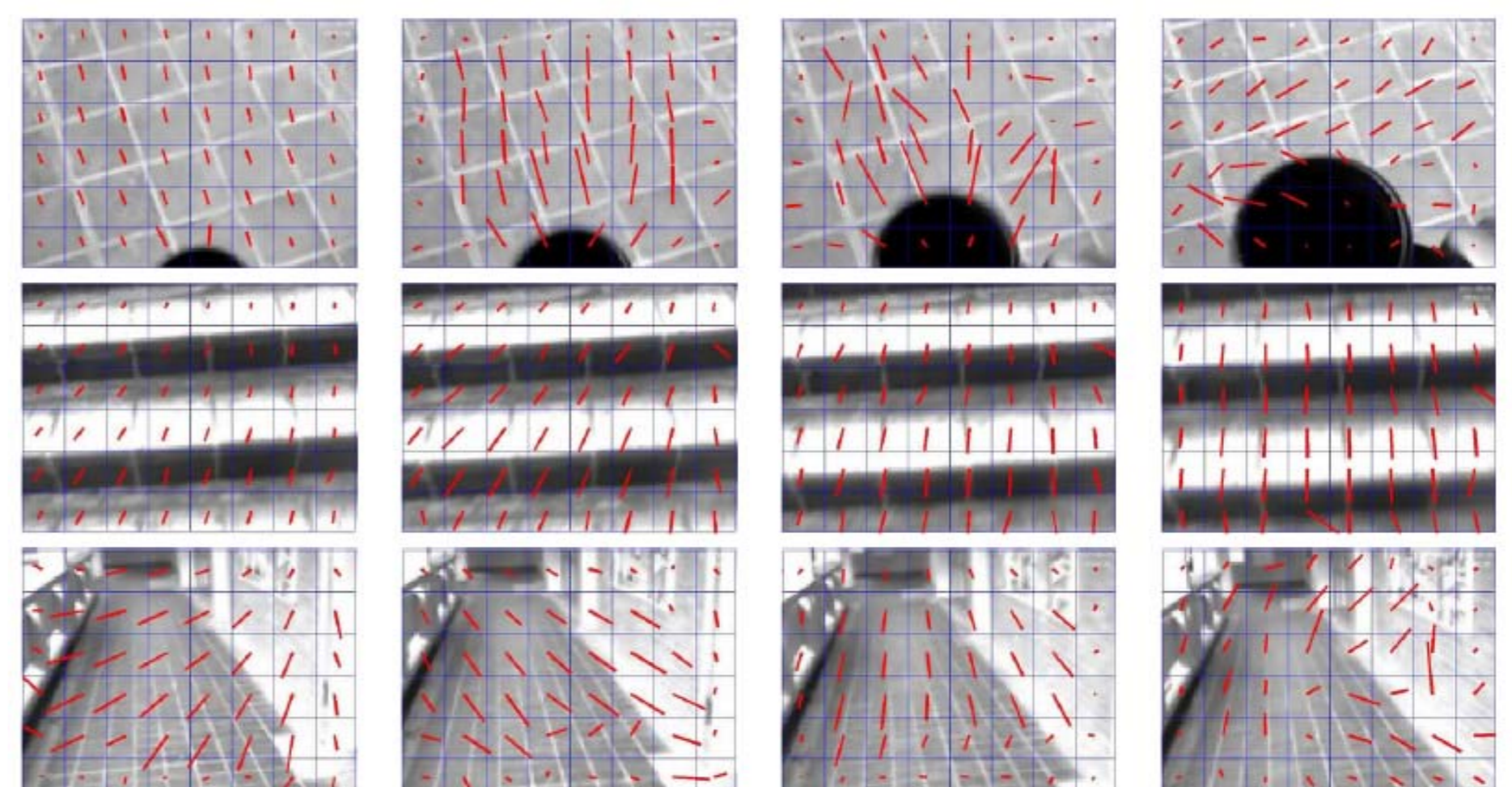


## System Overview

System processing pipeline:



- Our system currently supports four basic activities :
  - ✓ Walking
  - ✓ Drinking
  - ✓ Going Upstairs
  - ✓ Going Downstairs



## Classification Method

- Three main classification methods:
  - ✓ K-Nearest Neighbour:
  - ✓ Logit-Boost
  - ✓ Support Vector Machines (SVMs):
- Additional structured classification method:
  - ✓ Hidden Markov Model (HMM)

## Results

- Overall System Accuracy:
  - ✓ SVM (RBF kernel)+HMM: 82.1%
  - ✓ LogitBoost (200 WLs)+HMM: 82%
  - ✓ KNN (22 NNs)+HMM: 78.9%