Radar-based sensor for people detection and tracking

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IQRF Meetup CZ, Praha

CAMEA Image & Signal Processing

» Founded in 1995 in BRNO (CZ), now ~100 employees

» Focus on industrial and traffic applications (ITS)
  » Quality inspection (e.g. web, bottles, components, labels)
  » WIM, traffic monitoring, enforcement, vehicle identification

» R&D, manufacturing, selling, servicing, maintenance of components, systems, custom solution

» Many systems installed around the world
  » hundreds of visual systems
 » thousands of video cameras and processing units

Why radar?

» Alternative to camera, PIR sensor or laser scanner

» Active sensor based on radio waves transception

    » independent on weather or lightning conditions

» Straightforward signal processing chain

    » embedded processing capability

» Rich 3D point cloud detection

    » dense information that can be used for classification

» Direct measurement of detected objects' speed

    » used for grouping and tracking

People detection using radar

» 60GHz FMCW radar technology

» Wide FOV about 120°

» Range up to 100m (using beamforming)

» All processing done within the sensor

» presence detection (triggering)

» separation and tracking of objects (analysis of behaviour)

» false detection mitigation

» Low power consumption (3W and less)
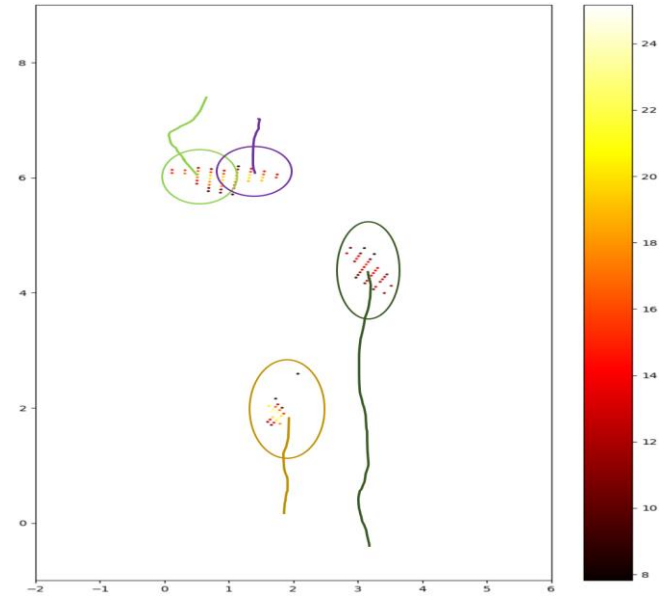
Problems solved by radar

» People detection and tracking
  » wall mounted for short-range (range resolution 4cm)
  » wall mounted allowing long-range detection (100m)
  » overhead (ceiling mounted) with wide FOV

» Bike counter
  » detection of cycling paths users
  » accuracy over 90%

» Traffic monitoring
  » fast moving objects (up to 200kph)
  » long range (about 200m)

Thank you for your attention

Please be invited to see our live demo