Project supported by Nadácia Volkswagen Slovakia



# Car Information and Entertainments System for Fellow Travellers





TECHNOLOGY IN BRATISLAVA FACULTY OF INFORMATICS AND INFORMATION TECHNOLOGIES



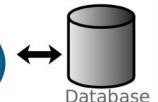
#### Module for text position computing

calculation of text position on the car window using position of head of user (detected by Kinect), actual GPS (detected by phone) and GPS of detected object (stored) in database)



#### Database module

- retrieval of information from database, including GPS data of objects and descriptors for seen objects



# the side window of a car

# Which peripherals does the system need?

#### Camera, Kinect, smartphone, projector.

## Which fields of IT is this project part of?

Computer vision. computer graphics, human-computer interaction

## What are the main features avaible to the user?

- objects of interests detections (sightseeing, restaurants, hotels)
- interactive tourist guide
- flight game

## Which technologies and resources have been used in development of this project?

C++, Java, OpenCV, OpenGL, Freenect

#### Android module

- interaction with game via Android app using touch or move gestures
- interaction with tourist info system using voice commands
  - switching between game and tourist info system



- load and management of modules
- control of application events, windows
- communication and synchronization between modules



### Image processing module

- processing of images captured by camera object detection and recognition using feature descriptors
- horizon detection using edge detection





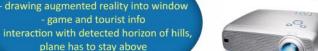


#### Kinect module

- detection of position of users head interpolation of coordinates to convert point of view to coordinates of projection plane processing of depth and RGB image from Kinect







 tourist info for about surroundings

Augmented reality module