QuickShot
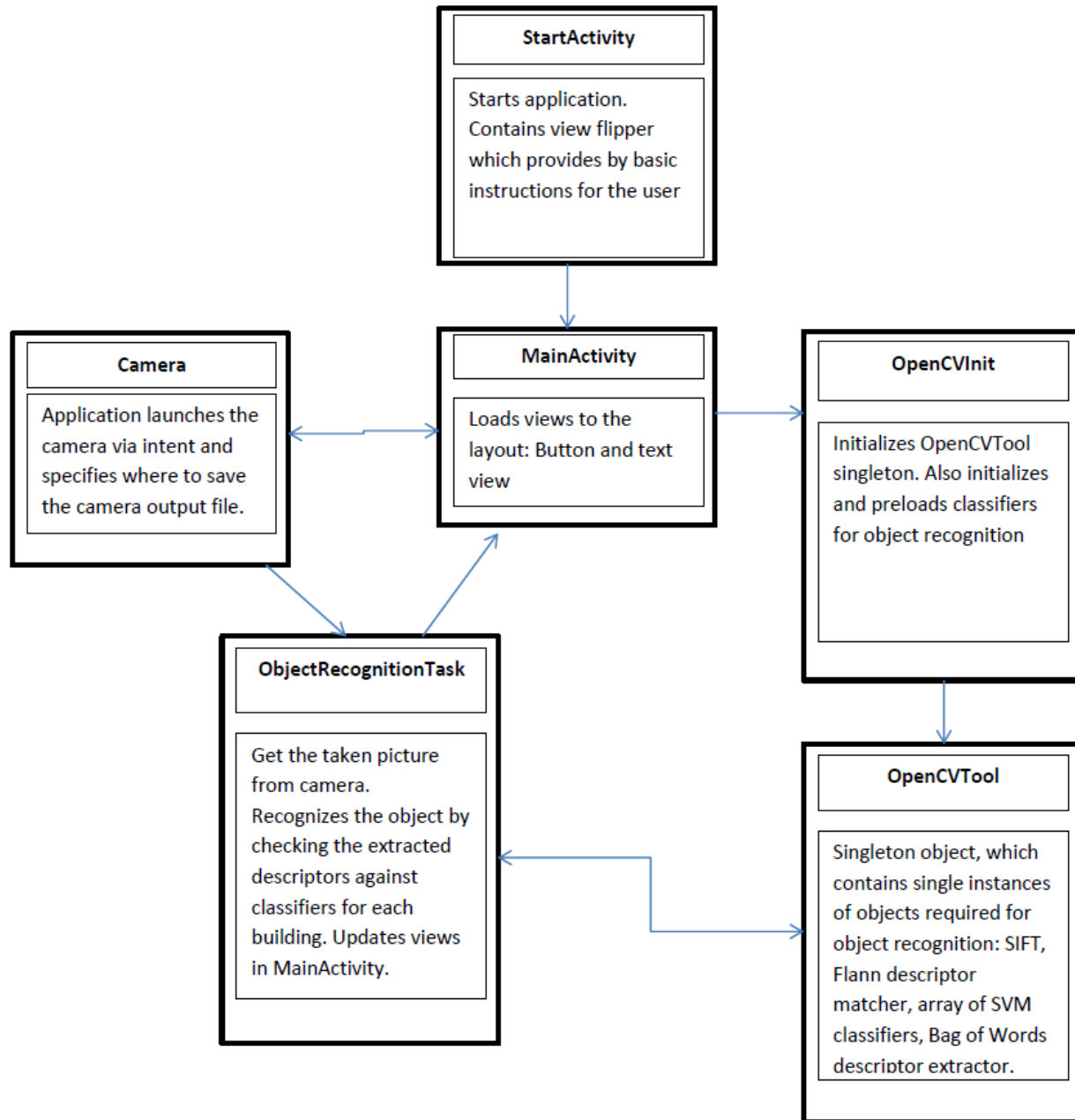
by

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Description:

QuickShot is an application that allows a user to identify a building by its image. A user will be able to get the information about the buiding by only taking a picture of it. Our application is mainly oriented on people who may be in Astana for the first time and thus need some guidance around the city. One of the advantages of our application is that it will be possible to use it even in an offline mode.

Scenario:

Recently, Carli moved to Astana but she does not know much about the city. She decides to take a walk. During her walk, she notices an interesting building which she doesn't know about since it's the first time she is in Astana. Luckily, when Carli was at home, she had a chance to download QuickShot application. She decides that she needs some help at guiding her around the city so she launches the application. After going through a quick tutorial of how to work with the application, she presses a button 'Take a shot!' and takes a picture of the building. After several seconds, the application displays the information about the building. Now, Carli knows that the building is called 'Baiterek' and can read the basic facts about it.

Implementation:

Below is the structure of our application:

StartActivity

Starts application. Contains view flipper which provides by basic instructions for the user

Camera

Application launches the camera via intent and specifies where to save the camera output file.

MainActivity

Loads views to the layout: Button and text view

OpenCVInit

Initializes OpenCVTool singleton. Also initializes and preloads classifiers for object recognition

ObjectRecognitionTask

Get the taken picture from camera. Recognizes the object by checking the extracted descriptors against classifiers for each building. Updates views in MainActivity.

OpenCVTool

Singleton object, which contains single instances of objects required for object recognition: SIFT, Flann descriptor matcher, array of SVM classifiers, Bag of Words descriptor extractor.

Future work:

+ implement image recognition in a way that it was processing images only within some limited set (based on the current location of a user, the recognition occurs within limited set of images);
+ extend the application to other cities;
+ add integration with google places API, so that a user could retrieve more detailed information from the internet upon his/her request.