

PROJECT PRE-PROPOSAL REPORT

2010-2011 CENG491 DESIGN – I

Group Name : We will define it after our project is determined.

Group Members :

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Project Names :

- i. Adaptable user interface according to environmental changes (Sponsored by ASELSAN)
- ii. Pattern Recognition and Labeling Objects (Sponsored by ASELSAN)
- iii. Automatic CDR Generation (Sponsored by SIEMENS EC)

1-) Adaptable User Interface According to Environmental Changes

Project Description :

Identifying the environment and state changes, by using images taken by camera of mobile devices and adapting the graphical user interface to provide convenience to users.

Motivation and Purposes :

Most of us are faced overexposing of sunlight problem when it directly hits our cell phones. We cannot see anything and try to block the sunlight to use it. Why not our cell phones do identifying the amount of the light and changing the screen brightness? It's just an example. There are lots of situations such that constrain users. Since the project contains processing the images according to some properties such as amount of light, motion of the user, it gives us valuable experience when compared to other projects. We all are interested in image processing. Our group members did summer practice in TUBİTAK, MODSIMMER and SIMSOFT which are related to graphic and image processing technologies. Therefore; we are all familiar with these technologies that will be used in this project. Moreover, all members of the group take CENG466 (Fundamental of Image Processing) course so that we are conscious about the importance of this area. The main idea of the project will be more widespread and will be used different types of areas.

Statement of the work to be performed :

The work to be performed consists of several important parts. First part is getting the images from camera that we will use and enhancing the image to use as input. After that, we

determine the conditions of the environment with respect to the input images. Describing and modeling more suitable and functional user interface according to conditions of the environment is the next stage. Final thing we are planning to do is implementation of the system. Other technical details will be discussed with company. Briefly, main parts of the this project are processing images and adapting and designing the user interface.

2-) Pattern Recognition and Labeling Objects

Project Description :

Distinguishing preliminary defined objects and getting some useful information from images. Furthermore algorithms will be improved to classify the objects and face recognition.

Motivation and Purposes :

Images are an important form of data in many fields. Examples include microscopy in biology, MRI and CT in medicine, satellite imagery in geology and agriculture, fingerprint and face images in security, and many others. Processing and getting useful information from these images is crucial for many fields. One of the most important areas in image processing is pattern recognition. Using pattern recognition will be more widespread in global scale, when we consider some developed countries such as England and USA, there are thousands of cameras and systems can process these images to several purposes. This project can lead us to new ideas which will be used in many areas in the future.

Statement of the work to be performed :

The work to be performed consists of two main parts. First part is identifying the objects that distinguished from other objects. After identification, we will create a database to storage these elements' information. Second part is the implementation of generic algorithms by using a high-level OOP language. Java or C++ seems more reasonable to implementation.

3-) Automatic CDR Generation

Project Description :

Preparing a Simulator or an Emulator to automate and generate CDR (Call Detail Record) based on preliminary defined configuration. Based on special purposes, this project contains CDR of external products and mixed networks.

Motivation and Purposes :

Continuous improvements on the information technologies and the communication systems together with people' level of education and economy the ability of covering most of our needs without going to shops, accepting the using of phones as a part of our lives. Moreover, technical support is also provided by without going to shops. Generating CDR reports provide reasonable feedback to end-users. Since CDR contains information about recent system usage such as the identities of sources (points of origin), the identities of destinations (endpoints), the duration of each call, the amount billed for each call, the total

usage time in the billing period, the total free time remaining in the billing period, and the running total charged during the billing period, there are several architectures implemented in order to facilitate CDR generation. And developing a combined system of these keywords is the goal of our project.

Statement of the work to be performed :

The work to be performed consists of three important parts. First part is gathering information from Human Resources department of Siemens EC to graphical user interface (GUI) for their needs. GUI will be done by graphical library of high-level OOP languages. Second part is the implementation of the code and database operations. Third part is testing of the product. We try to test the product by using implemented bots (by our) or classical methods. We are planning to use Windows operating systems as development environment.