



GALGOTIAS COLLEGE OF ENGINEERING & TECHNOLOGY

1, Knowledge Park-II, Greater Noida

DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING

B.Tech Final Year Project Work

Format for Project Synopsis

1. **Title page contents** (*see next page*)
2. **Abstract** (should not exceed half pages)
3. **Introduction** (should not exceed 2 pages including Figs.)
4. **Literature survey** (should not exceed 5 pages)
5. **Problem formulation:** Need and significance of proposed research work (should not exceed 1 page)
6. **Objectives** (should not exceed 1 page)
7. **Methodology / Planning of work** (should not exceed 2 pages)
8. **Activity chart:** Detailed work plan [Optional]
- References** (should not exceed 2 pages)

Note: 1. Total no of pages for synopsis can ranges from 8 - 12 pages.

2. Should be well formatted and justified.

3. Approval of guide is required.

RULES AND REGULATIONS FOR SYNOPSIS

1. All the students are required to submit their synopsis in prescribed format to respective coordinators.
2. Students will be given date and time for presentation of project progress report.
3. After approval of Project Title, the candidate may start his / her project work.

**A
Synopsis
on
(Project Title Name)**

Submitted in partial fulfillment of the requirements

for the award of the degree of

Bachelor of Technology

in

Computer Science and Engineering

by

(Name of Students)

Roll. No. 0261184806

Semester – VII

Under the Supervision of

(Name of Guide)



Galgotias College of Engineering & Technology

Greater Noida 201306

Affiliated to



Dr. APJ Abdul Kalam Technical University, Lucknow

Abstract: An abstract is a short summary of your completed research. If done well, it makes the reader want to learn more about your research. These are the basic components of an abstract in any discipline. **First:** Motivation / problem statement: Why do we care about the problem? What practical, scientific, theoretical or artistic gap is your research filling? **Second:** Methods / procedure / approach: What did you actually do to get your results? (e.g. analyzed 3 novels, completed a series of 5 oil paintings, interviewed 17 students) **Third:** Results / findings / product: As a result of completing the above procedure, what did you learn / invent / create? **Fourth:** Conclusion/implications: What are the larger implications of your findings, especially for the problem / gap identified in step first?

Keywords:

Eg. Title of Project: Hand Gesture Recognition Based on Karhunen-Loeve Transform

ABSTRACT

In this project, we have proposed a system based on KL Transform to recognize different hand gestures. The system consists of five steps: skin filtering, palm cropping, edge detection, feature extraction, and classification. Firstly the hand is detected using skin filtering and palm cropping was performed to extract out only the palm portion of the hand. The extracted image was then processed using the Canny Edge Detection technique to extract the outline images of palm. After palm extraction, the features of hand were extracted using K-L Transform technique and finally the input gesture was recognized using proper classifier. In our system, we have tested for 10 different hand gestures, and recognizing rate obtained was 96%. Hence we propose an easy approach to recognize different hand gestures.

Keywords: *Hand Gesture Recognition, Karhunen-Loeve (K-L) Transform, Skin Filtering, Canny Edge Detection, Image Segmentation, Human Computer Interaction.*

1. Introduction

Hand gesture recognition is one of the growing fields of research today which provides a natural way of human machine interaction. Gestures are some forms of actions which a person expresses in order to express information to others without saying it. In our daily life, we can observe few hand gestures frequently used for communication purpose like thumbs up, thumbs down, victory, directions etc. Some common examples are in cricket where the umpire uses different hand gestures to show different events that occurred at that instant on the match, hand gestures used by the traffic police, etc. In our paper, we have firstly used Skin filtering where the RGB image is converted to HSV image because this model is more sensitive to changes in lighting condition. And then K-L transform is performed. The advantage of K-L transform is it can eliminate the correlated data, reduces dimensions keeping average square error minimum, and gives excellent cluster character after the transform. Some applications in this field that has already been done, for example hand gesture recognition for sign language, hand gestures used for controlling robot's motion, in video games, etc

Many researchers [1][2][3] used Vision based approaches for identifying hand gestures.....

In [4] Genetic Algorithms (GA) was used for solving problems in
Future research may consider

2. Literature survey

Literature survey is a very important part of a research project. It achieves the following:

- a. Familiarizes the reader to the problem under study.
- b. It describes the work done by others either at local or international level on it or similar subject.
- c. It helps the researcher to understand the difficulties faced by others and the corrective steps taken or modifications made by them. The researcher can anticipate similar or additional problems during the study and review of literature (or literature survey) helps him in anticipating them.
- d. Research methodology of the researcher can be structured and modified after reviewing the literature.
- e. The review assists in identifying various variables in the research project and conceptualizes their relationship.
- f. Review of literature (or literature survey) in a synopsis helps the reviewer in assessing the knowledge of the researcher. The reviewer can assess the work put in by the researcher and also assists in assessing the feasibility of the study.

The review of literature (or literature survey) in a synopsis need not be exhaustive. The relevant information should be covered in about 300 words quoting 8-10 authentic, easily retrievable references. Literature can be reviewed by using various scientific-information-gathering methods. These are journals, national or international; bulletins of organizations like WHO, CDC, and ICMR; books; computer-assisted searches like Medline and Medlar; and personal communications with other researchers. Internet provides a vast avenue for information gathering. Care must be taken to retrieve only relevant information. In this era of information technology review of literature is literally "just a click away".

3. Problem formulation: Need and significance of proposed research work (should not exceed 1 page)

4. Objectives (should not exceed 1 page)

All research projects should have objectives and aims and every effort should be made to achieve them. The objectives and aims should be only a few (2-3). They must pertain to the study problem. Usages of terms like "first study", "the only study", etc. should be avoided.

5. Methodology / Planning of work (Just Write what you are going to do in 7th and 8th semester according to milestone of project, should not exceed 2 pages)

In a synopsis the research methodology adopted should be mentioned in about 150-200 words. The research methodology forms the core of the research project. The methodology should cover the following aspects:

- a. Study design
- b. Study settings
- c. Sampling

- d. Variables
- e. Controls
- f. Study methods - examinations or investigations
- g. Data collection
- h. Data analysis
- i. Ethical clearance

6. Activity chart: Detailed work plan [Optional]

References (Should be at separate page and be in chronological order)

All references quoted in review of literature and anywhere else in the synopsis should be listed here. There are two styles for writing references, Vancouver style and Harvard style. Vancouver style is easy to follow as it depends on the numbers as quoted in text.

For papers / articles:

[Number] Name of Author, “title Of Work”, Journal Name, Volume Number, Issue Number, Page Numbers (pp. first-last), Year (or Month and Year)

For papers in Conference Proceedings:

[Number] Name of Author, “title Of Work”, Phrase Proceedings of the Conference Name, Place, Date [Publisher, Place Date]

For books, reports, theses, standards, manuals, etc.:

[Number] Name of Author(s), “title Of Work”, Publisher, Place, Date
(if authors’ or editors’ names are not available, it can start with a title of the name of the Publisher)

For websites:

[Number] Author Names(s), “Title of Work”, Company’s Name, Place, Date, and URL

Note: For names of authors never use full first names, only initials!

[1.] C.Yu, X. Wang, H. Huang, J. Shen and K. Wu, “Vision-Based Hand Gesture Recognition Using Combinational Features”, IEEE Sixth International Conference on Intelligent Information Hiding and Multimedia Signal Processing, pp. 543-546, 2010.

[2.] L.K. Lee, S.Y. An, and S.Y. Oh, “Robust Fingertip Extraction with Improved Skin Color Segmentation for Finger Gesture Recognition in Human-Robot Interaction”, WCCI 2012 IEEE World Congress on Computational Intelligence, Brisbane, Australia, 10-15 June, 2012.

[3.] P.S. Rajam and G. Balakrishnan, “Real Time Indian Sign Language Recognition System to aid Deaf-dumb People”, IEEE, pp. 737- 742, 2011.

[4.] R. Verma and A. Dev, “Vision based Hand Gesture Recognition Using Finite State Machines and Fuzzy Logic”, IEEE, 2009.