

## CERTIFICATE

This is to certify that the work titled “**AUTOMATIC IMAGE ANNOTATION**” submitted by “**ESHAN GAUR**” in partial fulfilment for the award of degree of Bachelor of Technology of Jaypee Institute of Information Technology, Noida has been carried out under my supervision. This work has not been submitted partially or wholly to any other University or Institute for the award of this or any other degree or diploma.

Signature of Supervisor .....

Name of Supervisor .....

Designation .....

Date .....

## ACKNOWLEDGMENT

I am overwhelmed in all humbleness and gratefulness to acknowledge all those who have helped and encouraged me to put these ideas, well above the level of simplicity and into something concrete.

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## SUMMARY

In today's social media centric world most of the times we rely on pictures in one form or other. This heavy reliance on pictures to share and distribute our day-to-day lives warrant the need to segregate image based on the content they provide.

Here comes the need for Image Annotation. Now, image annotation can be of multiple types but the two major types are manual vs automatic. Manual annotation has been in the works for quite a time as of now but with modern advancements in Artificial Intelligence (AI) has led to opening of new avenues that can utilise artificial intelligence and reduce or eliminate manual image annotation. The automatic image annotation approach suggested in this report uses Speeded Up Robust Features (SURF)[4] features to detect and extract points of interest through the image and throughout the database. From multiple feature detectors, SURF was chosen as it is the most reliable and computationally fastest algorithm in the given situations related to this project. After the detection and extraction is done, K- Means clustering algorithm is used to cluster the features so as to help the Support Vector Machine (SVM) [3] differentiate between various categories of images used as an input. Furthermore, the database consists of 4000+ images. The database is divided into two parts. The first half is used as the training set and the second set is used as the validation set. Through thorough testing of both the testing and the validation set, accuracy, precision, recall and Fmeasure of the approach is calculated.

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Signature of Student

Name

Date

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Signature of Supervisor

Name

Date

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