A

Project Report on

EFFICIENT GAIT RECOGNITION USING ONE SHOT LEARNING ALGORITHM

(PHASE – I)

Submitted for partial fulfilment of the requirements for the award of the degree of

BACHELOR OF TECHNOLOGY

in

COMPUTER SCIENCE AND ENGINEERING

by

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St. MARTIN'S ENGINEERING COLLEGE
UGC Autonomous
Affiliated to JNTUH, Approved by AICTE,
Accredited by NBA & NAAC A+, ISO 9001:2008 Certified
Dhulapally, Secunderabad - 500 100

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Certificate

This is to certify that the project entitled **"Efficient Gait Recognition Using One Shot Learning Algorithm"** is being submitted by **Ms. Maryjane Namya 18K81A0538,** in fulfilment of the requirement for the award of degree of **BACHELOR OF TECHNOLOGY in DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING** is recorded of bonafide work carried out by them.

The result embodied in this report have been verified and found satisfactory.

Guide	**Head of the Department**
Dr. M. NARAYANAN	**Dr. M. NARAYANAN**
Professor & Head	**Professor & Head**
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Internal Examiner   **External Examiner**

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DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

DECLARATION

We, the students of '**Bachelor of Technology in Department of Computer Science and Engineering'**, session: 2018 - 2022**, St. Martin's Engineering College, Dhulapally, Kompally, Secunderabad,** hereby declare that the work presented in this Project Work entitled **"Efficient Gait Recognition Using One Shot Learning Algorithm"** is the outcome of our own bonafide work and is correct to the best of our knowledge and this work has been undertaken, keeping in mind, the care of Engineering Ethics. This result embodied in this project report has not been submitted in any university for award of any degree.

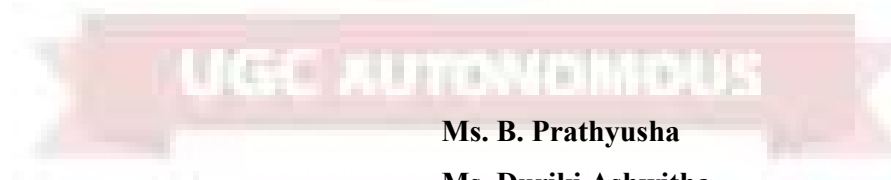|	
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ABSTRACT

Gait recognition can analyse the shape of an individual's body and the unique way in which that body moves when walking or running, which can then be used to identify them. Gait Recognition works in a similar way to how the facial recognition technology works. This has been a topic of continued interest in the biometrics research community.

There have been considerable theories supporting that person's walking style is a unique behavioural characteristic, which can be used as a biometric. Differing from other biometric identification technologies such as face recognition, gait recognition is widely known as the most important non-contactable, non-invasive biometric identification technology, which is hard to imitate.

Hitherto, finding a person in a crowd from things like CCTV Footage was possible using methods like Face Recognition. But considering how the current situation is, it is safe to say that Face Recognition techniques are not of much use since having a mask on the person's face isn't ideal for the Face Recognition Algorithm.

At this point, we need an algorithm which would work irrespective of such external factors. Gait Recognition is such an algorithm which doesn't consider how a person looks/wear and doesn't require any external contact with the person. Our aim is to develop an Efficient Gait Recognition Algorithm using minimal prior training to the network. We plan on using Algorithms like One Shot Learning Algorithm which focuses on having only a single image, prior to recognition. We also planning on using algorithms such as Linear Binary Pattern (LBP), Histogram Oriented Gradients (HOG) and Haralick texture features for making the algorithm properly recognize a person irrespective to them carrying unknown covariates such as clothing and possessions of carrier bags. Furthermore, we utilize the Fisher Linear Discriminant Analysis for dimensionality reduction and selecting the most discriminant features. We evaluated our results using CASIA Gait Database A. The performance of the project needs to be performed.

LIST OF FIGURES

LIST OF ACRONYMS AND DEFINITIONS

S.NO	ACRONYM	DEFINITION
01	LBP	Linear Binary Patterns
02	GEI	Gait Energy Image
03	HOG	Histogram Oriented Gradients
04	SVM	Support Vector Machine
05	ANN	Artificial Neural Network
06	CNN	Convolutional Neural Network
07	MLP	Multi-Layer Perceptron
08	SN	Siamese Network
09	FV	Feature Vector
10	CASIA	Center for Biometrics and Security Research

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