**A Project Report on**

**“NAME OF PROJECT”**

**For the Degree of**

**Bachelor of Engineering in Electronics and Telecommunication**

**SUBMITTED BY:**

**1. FULL NAME OF STUDENT WITH ROLL NO.1**

**2. FULL NAME OF STUDENT WITH ROLL NO.2**

**3. FULL NAME OF STUDENT WITH ROLL NO.3**

**UNDER THE GUIDANCE OF**

****

Department Of Electronics and Telecommunication

**Annasaheb Dange College of Engineering and Technology, Ashta**

**Tal. Walwa, Dist.Sangli, Maharashtra,India**

*“To be a leader in preparing professionally competent engineers”*

**2020-2021**

**CERTIFICATE**

This is to certify that the Project Report entitled **“Name of Project”**, which is being submitted by, Mr. Student Name 1, Mr. Student Name 2 as partial fulfillment for the Degree of Bachelor of Engineering(Electronics and Telecommunication) of **Shivaji University,** **Kolhapur**. This is bonafide work carried under my supervision and guidance.

Place: ADCET, Ashta

Date:

**Name of Guide Name of Project I/C**

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Name and Signature of student

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**LIST OF ABBREVIATIONS**

|  |  |  |
| --- | --- | --- |
| **Sr.No.** | **Abbreviations** | **Description** |
|  | PT | Power transformer |
|  | CT | Current transformer |
|  | CLKIN | Clock in |
|  | ADC | Analog to Digital Converter |

**ABSTRACT**

Pain is a primary symptom in medicine, and accurate assessment is needed for proper treatment. However, today’s pain assessment methods are not sufficiently valid and reliable in many cases. Automatic recognition systems may contribute to overcome this problem by facilitating objective and continuous assessment. In this article we propose a novel feature set for describing facial actions and their dynamics, which we call facial activity descriptors. We apply them to detect pain and estimate the pain intensity. The proposed method outperforms previous state-of-the-art approaches in sequence-level pain classification on both, the Bovid Heat Pain and the UNBC-McMaster Shoulder Pain Expression database. We further discuss major challenges of pain recognition research, benefits of temporal integration, and shortcomings of widely used frame-based pain intensity ground truth.

Two fully automated algorithms are presented, the first uses Gabor filters with Support Vector Machines, the other uses a type of deep learning, Convolutional Neural Networks. Feasibility studies are conducted on a database and real-life subjects from an elderly care facility. Results are evaluated using precisions and speed of computation.