**iBlink: A Wearable Device Facilitating Facial**

**Paralysis Patients to Blink**

**Alternative title:**

**Efficient Iblink Checking And Shocking System**

**Aim:**

Aim of this project is automatic raspberry pi based automatic iblinking system for system users.

**Introduction:**

FACIAL paralysis is a disease making people losing facial movements, which are caused by nerve damages. People suffering from facial paralysis usually have muscles on one side of the face noticeably droop, which seriously impacts the person’s quality of life. What is worse, facial paralysis can incur eye damage even blindness, because the eyelid on the affected side cannot fully close, which makes the eye dry and infected by debris. The most common form of facial paralysis is known as Bell’s palsy, which impacts 40,000 people in U.S. each year, where the typical symptom is the muscle dysfunction on one side of the face.

 In this paper is proposed raspberry pi based eye blink detecting device for system user. Raspberry pi is containing one USB camera, this camera is used to monitor the person eye blink count. The basic idea of eye Blink is to monitor the normal side of the face with a camera and stimulate the paralyzed side, so that the blink of both sides of the face could become symmetric. CNN algorithm is used to detect particularly eye blink count of user. When the person continuously will not close the eye then controller will check and activate small shocking system in user face. This shocking system is containing small automatic stimulation circuits. This circuit is providing electric impulse to the user face.

**Existing system:**

In this existing system designed and implemented iBlink, a pair of smart glasses to provide eye protection for facial paralysis patients. We have proposed eye-movements detection mechanism based on SVM, which can detect asymmetric eye-movements of patients under various illumination conditions. This existing system has trained data set for checking eye movement.

**Disadvantage:**

* Using two pair of camera for checking eye movement.
* Using trained data set for checking eye movement. If any abnormal movements of eye not trained in data set, system will not stimulate electric pulse.

**Proposed system:**

In the proposed system is used to detect eye blinking count implemented by raspberry pi. This system is used to CNN algorithm for checking eye movement and also eye count. If the person will not blink the eye system will stimulate the electric pulse in user face.

**Advantage:**

* Using only one camera for detecting both two eye count.
* Using single trained data set for checking eye count in CNN algorithm.

**Block diagram:**

Raspberry pi

USB camera

Small shocking system

Power supply unit

**Block diagram description:**

 Above the block diagram is containing raspberry pi, USB camera, shocking system and power unit. The USB camera is connect to USB port of raspberry pi. Shocking system is connecting to GPIUO pin of raspberry pi. Power unit is providing power to device. CNN algorithm is used to detect eye count of user.

**Requirements:**

**Hardware Requirements:**

* USB camera
* Raspberry pi
* Electric signal stimulating circuit

**Software Requirements:**

* Python language
* Python IDLE