

# A New Security Technique: Brain Password

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## Abstract:

Security refers to all the measures that are taken to protect a place, or to ensure that only people with permission enter it or leave it and limiting access to key network resources by keeping the resources behind a locked door and protected from natural and human-made disasters. We have different type security technique to protect the information and also our credentials. In this paper we will discuss different security technique called Brain Password. Using this technique we will secure our data and all credentials.

**Keywords:** Security, Authentication, virtual reality headset, EEG, Brain waves, Neurons, Electrodes.

## 1. INTRODUCTION:

AUTHENTICATION is a process of validating who you are to whom you claimed to be, or in other words a process of identifying an individual, usually based on a username and password.

Human Authentication Techniques are as

1. Knowledge Base.
2. Token Based.
3. Biometrics.

In these days biometric techniques (e.g., fingerprint or iris) are increasingly integrated into mobile devices to offer security advantages over traditional practices (e.g., passwords and PINs) due to their ease of use in user authentication. However, existing biometric

Systems are with controversy. Once divulged, they are compromised forever no one can grow a new fingerprint or iris. Particularly, we address the following research challenges in mobile biometrics with a theoretical and empirical combined manner: how to generate reliable brain responses with sophisticated visual stimuli, how to acquire the distinct brain response and analyze unique features in the mobile platform, how to reset and change brain

biometrics when the current biometric credential is divulged

So now a day's all authentication techniques little bit failure so that to overcome that failure we will use the "BRAIN PASSWORD". In this technique we are use Virtual Reality Headset and also electroencephalogram test. This device compulsory wear by the user.

## 2. PROPOSED WORK:

### 2.1. Brain Password:

The Brain password is like unique password which was created by the human mind nothing but user. When the user can see about different type images, videos or any text, that user can get different ideas about that thing. At that time in our brain generated different type neurons waves and some signals, that brain waves we will store in cloud database. In the process of recognition user can see that same image or any video automatically user can get same idea simultaneously brain think like as same as before so that brain waves can propagated same as cloud database matching, then automatically it will recognize details of user.



Fig 1: Brain Waves.

## 3. MODULES:

### 3.1 Virtual Reality Headset:

A **virtual reality headset** is a head-mounted device that provides virtual reality for the wearer. VR headsets are widely used with computer games but they are also used in other applications, including simulators and trainers.

They comprise a stereoscopic display, stereo sound, and head motion tracking. Sensors gyroscopes, accelerometers, structured light systems, Some VR headsets also have eye tracking sensors gaming controllers.

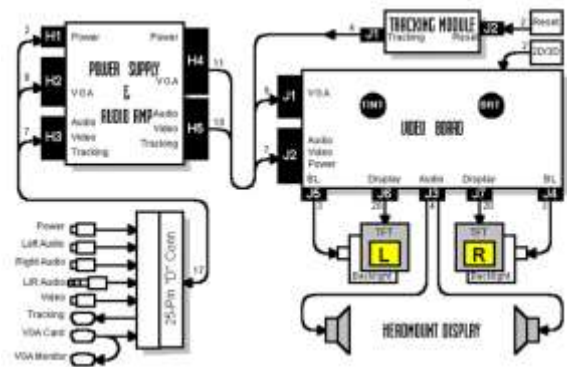


Fig 3: A Model VR headset

The Model Virtual Reality headset has 32 Electrodes but we have decrease 6 Electrodes. In those 3 Electrodes has activate the brain. In this three electrodes two electrodes acts as ground and one electrode reference point.

**3.3 Electroencephalogram:**

An electroencephalogram (EEG) is a test that detects electrical activity in your brain using small, metal discs (electrodes) attached to your scalp. Your brain cells communicate via electrical impulses and are active all the time, even when you're asleep. This activity shows up as wavy lines on an EEG recording. An EEG is one of the main diagnostic tests for epilepsy. An EEG can also play a role in diagnosing other brain disorders.



Fig 2: Wearing of Virtual Reality Headset

**3.2. VR Head Set Functional Process:**

At the root of all our thoughts, emotions and behaviours is the communication between neurons within our brains. Brainwaves are produced by synchronised electrical pulses from masses of neurons communicating with each other. Brainwaves are detected using sensors placed on the scalp. They are divided into bandwidths to describe their functions, but are best thought of as a continuous spectrum of consciousness; from slow, loud and functional - to fast, subtle, and complex.

Our brainwaves change according to what we're doing and feeling. When slower brainwaves are dominant we can feel tired, slow, sluggish, or dreamy. The higher frequencies are dominant when we feel wired, or hyper-alert.

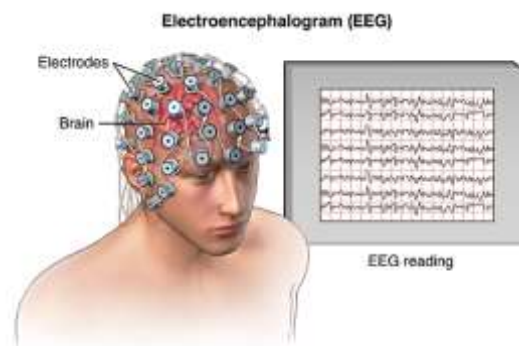


Fig 4: EEG Functional Process.

This the physiological method of choice to record all of the electrical activity generated by the brain from electrodes placed on the scalp surface. For faster application, electrodes are mounted in elastic caps similar to bathing caps, ensuring that the data can be collected from identical scalp positions across all respondents. EEG is one of the fastest imaging

techniques available as it can take thousands of snapshots per second (256 Hz or higher). 100 years ago the EEG time course was a plot on paper. Current systems display the data as continuous flow of voltages on a screen.

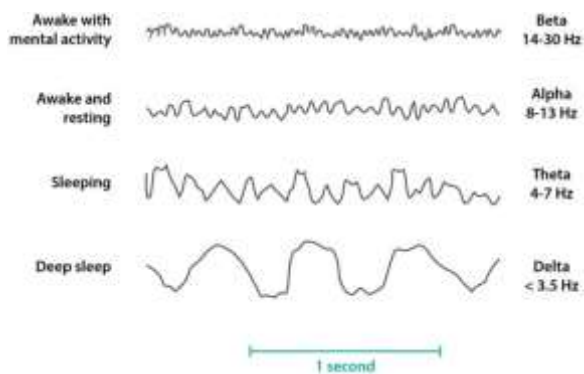


Fig 5: Different types of brain waves.

#### 4. CONCLUSION

The Brain Password is now a day's going to be unique password. By using this brain password we will secure our authentication. For this we are using VR Headset, this headset component can recognize different types of waves, while our brain also seeing one image or any video, it reflects the same thing in brain. That wave's can record through EEG. Once we can retrieve that waves store in database. In logging process we will see the same image our brain reflecting waves, and compare with previous waves then it will be authentication our Resources.

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