

Vivekanand Education Society's Institute Of Technology
(Affiliated to University of Mumbai)

Institute Name	Vivekanand Education Society's Institute Of Technology
India Ranking 2020 ID	IR-E-C-33895
Discipline	Engineering
Parameter	Patents Details 2016-17

1. **Glitter Seal Authentication and Tamper Detection Using Neural Networks (No. 201621006029 A) - Patent Filed by Dr. Nadir N. Charniya (VESIT) Ms Lakshmi V. (Don Bosko)**

Abstract- Physical tampering with devices is a growing problem and is a common issue among users who are concerned with security of their devices. Affixing tamper-proof seals over ports or chassis screws, won't be useful as these seals can be replicated or opened cleanly. Hence there is a need to create a seal that is impossible to copy. This can be achieved by applying glitter paint on the seal. Glitter paint, once applied, has a random pattern and hence it is difficult to replicate once broken. This paper presents a system using image processing techniques that will be able to detect tamper and also authenticate the seal. The image of the device with the seal applied on it would be taken before leaving it alone and upon returning of the device, another image would be taken. Radon transform and Local Binary Pattern Variance (LBPV) techniques are used to extract rotation invariant features after preprocessing technique and dominant features would be selected from the different set of features. Optimal neural network architecture with minimum number of hidden neurons was designed with a constraint of maximum classification accuracy.

2. **Helmet/Solar Helmet (No. 286362/286364) - Patent Filed by Ms. Manisha P. Joshi (VESIT) Mr. Rupendra Sharad Nehete Mr. Premkumar Purushottam Joshi Mr. Balkrishna Eknath Narkhede Dr.Vivek Yakundi**

Abstract- Working under high temperature is always a tedious job for human being, especially the construction workers, high temperature service conditions and soldiers. To improve the human comfort in high temperature conditions this is an attempt to design a solar cooled helmet. This solar cooled helmet generates electricity using solar panel installed on helmet and cooling effect is produced by peltier thermo electric plate, which reduces temperature in helmet to the range

of 20-24 °C. The unique feature of this product is that the air is circulated throughout the helmet body through cavities in it. The purpose of the project is to solve the problem of soldiers during patrolling, to provide cooling effect inside the helmet by using some compact, lightweight, portable, easy to handle attachment on their present helmet. During day time when the temperature is high the solar energy available from sun can be utilized to generate electricity using solar panel and the cooling effect is produced by thermoelectric plate to improve the head and human comfort. It is also necessary to store the available solar power in the battery. A lithium ion battery is used for storage purpose due to its compactness and light weight structure. Also battery charging is possible during non-working hours with the help of electricity