

chapter

3

*INTELLIGENT NEURO-SYSTEM SOLUTION*

*BY WAN ZUHA WAN HASAN*

Brain is an organ that serves as the center of the nervous system containing soft nervous tissue in the skull of vertebrates. Physiologically, the function of the brain is to coordinate the centre of sensation, intellectual capacity and neuronal activity. Today, knowledge of intricacies and potentials of human brain has inspired many manufacturers to produce similar intelligent systems that can be applied into specific applications in medical engineering to benefit mankind. Recent models in modern neuroscience treat the brain as a biological computer, very different in mechanism from an electronic computer, but similar to human brain in the sense that it acquires information from the surrounding world, stores it, and processes it in a variety of forms.

Due to technology advancement, researchers from biomedical engineering have extensively explored and developed many intelligent system that mimic human brain sensory systems. Most applications that are already commercialized mainly focus on sensing mechanisms, which are targeting specific

functions such as vision (image processing), emotion detection, disease detection, paralyzed body and etc. Today, there are many tools, sensors, controller systems and equipment that can support in developing such systems. Therefore, any new invention can be developed for another possible application related to a brain-like system.

In biomedical engineering, physiological signal is the main channel that provides recording and monitoring electrical activity to initiate new idea exploration of producing artificial human brain system. These channels such as electromyography (EMG), electrocardiography (ECG) and electroencephalography (EEG), are used for communication between human brain and technology; which in future will help researchers to construct human brain-like system.

This innovation will be valuable to individuals in need. More brain-like system products will be explored and developed in future to improve the quality of life and to reduce medical cost.