Efficient routing technique and localization in a Wireless Sensor Network describes how multiple wireless sensing nodes can be effectively addressed and arranged within a Personal Area Network (PAN) in a Wireless Sensor Network. The method involve creating multiple PAN in the network to be coordinated by a Full Functional Device called coordinator, the rest nodes in the PAN are referred to as reduced functional device (RFD), to achieve this the nodes were patterned in the order of an Artificial Neural network (ANN), which gave rise to an a maximum of 65025 sensor nodes that can be addressed. This method made it possible for data (payload) transmitted by each node to be received by the specific receiving node at the destination with the aid of node addresses.