A Clifford graph algebra $GA(G)$ is a useful structure for studying a simple graph $G$ with $n$ vertices. Such an algebra associates each of its $n$ generators with one of the $n$ vertices of $G$ in a way that depicts the connectivity of $G$ in that any two generators anti-commute or commute depending on whether their corresponding vertices share or do not share an edge.

We will construct the Clifford graph algebra for any Dutch windmill graph $D^m_n$ which consists of $m$ copies of the $n$-cycle graph $C_n$ adjoined at one common vertex, then apply this algebraic theory to the class of 3-cycle graphs $F_n = D^3_n$ known as friendship graphs. Specifically, we will use the algebra $GA(F_n)$ to give a new proof of the fact that those simple graphs which posses the friendship property are precisely the friendship graphs.

Keywords : Clifford algebra, Dutch windmill graph, friendship graph, vertices.