The effective operation of a decoupled induction machine by rotor field oriented technique is altered by the variation of rotor resistance and the operation with small loads. In fact, the variation of the rotor resistance causes an increase in the copper losses. But the operation with small loads causes excessive iron losses. The present work, present a study permitting the maintain of he driver efficiency in the case of the operations stated above . Two mechanisms are developed, first one based on the fuzzy logic, its objective is to adapt the rotor resistance, whereas the second is based on the optimization of the total losses. This mechanism permits to obtain the value of the optimal control of flux rotor, which correspond to optimal consumption of the energy. The obtained simulation results have shown a good foundation of this approach