In the present work we study an alternative formulation of the so called nonlocal resonant model, which describes collisions of electrons with molecules. In our approach we solve a system of differential equations describing time-dependent nuclear dynamics of the collision process instead of solving a standard equation with nonlocal potential. The goal of this work was to find a suitable numerical method for solution of those equations, test it on a model problem and on the problem of resonant collision of electron with molecule H2. Obtained results are in very good agreement with reference results from the standard calculations.