

To solve indra's project we tried 3 different approaches but all of them failed.

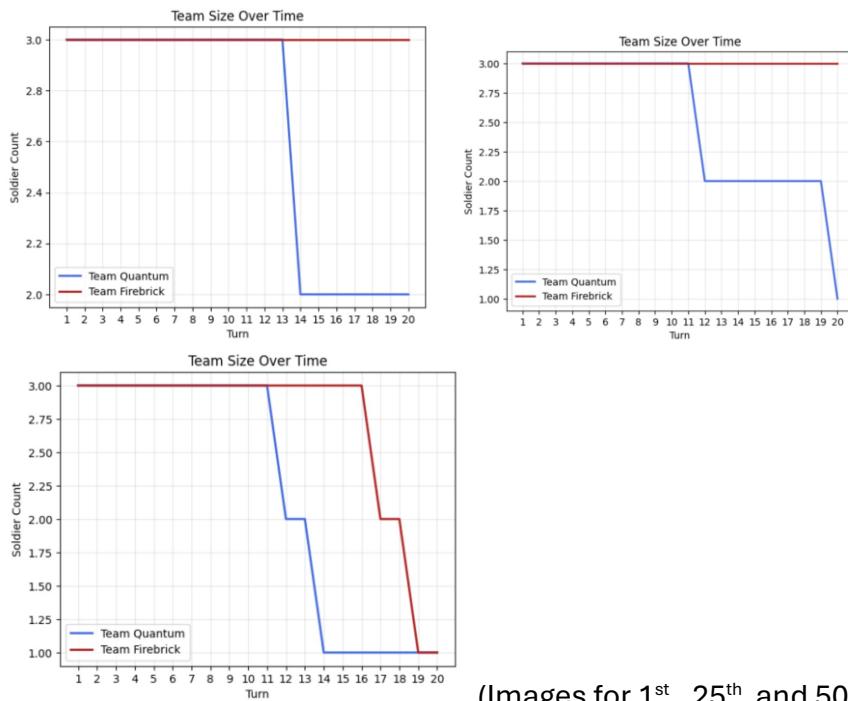
A quantum random walk approach, a QAOA with 2 qubits and a QAOA with multiple qubits.

All these 3 methods right now seems to be random and have no advantage in comparison to the classical model.

The most promising version is a QAOA with 2 qubits, where the parameters of the Hamiltonian depend on the distance to the closest enemy and its range of attack.

To balance these parameters we introduced a genetic algorithm that choose the coefficients of the hamiltonians to the most optimal ones.

However we did not have time, and the results are only up to the 50<sup>th</sup> generation.  
So it is purely random.



(Images for 1<sup>st</sup> , 25<sup>th</sup> and 50<sup>th</sup> generations)

For future improvements it would be needed to run this genetic model more time.