This paper presents an evolutionary approach (genetic algorithm) to allocate frequencies in the cells of cellular network. In cellular telephone system, each cellular area is divided into small regions called cells. Each cell uses a unique set of frequencies. There is limited frequency so the frequency needs to be reuse. The Frequency allocation problem states that given any area separated into cells are allocated frequencies in such a way that no neighbor cells could have the same frequency... Since the problem looks very simple but as the number of cells is increased it becomes very complex and becomes NP-Complete problem. To find the solution of this problem, we have explored the use of genetic algorithm where possible solutions are improved generation by generation and there is more probability to find the exact solution. . Fitness function is developed which is the backbone of the concept of genetic algorithm and directly affects the performance; since this is NP problem and traditional heuristics have had only limited success in solving small to mid size problems. In this paper we have tried to show that genetic algorithm is an alternative solution for this NP problem where conventional deterministic methods are not able to provide the optimal solution.
Index Terms

Computer Science

Communication

Systems

Key words

Genetic Algorithm

Cellular Telephone

Frequency allocation