

ABSTRACT

SMK Telkom Bandung has five study programs, there are Telecommunications Access Network Engineering, Computer and Network Engineering, Computer Network Engineering And Telecommunications, Visual Communication Design and Multimedia. From five study programs that exist, there are class differences for each generation. The number of classes follows the number of study program enthusiasts at each new student admission. This causes the number of study programs for the X, XI and XII grades are not the same. Furthermore, SMK Telkom Bandung has a curriculum system that was different from the other SMK in general. In this school, there are odd weeks and even weeks. On odd weeks the XII grades carry out productive methods, which is doing all practicums. While the X and XI grades carry out non-productive methods, which is taking general subject learning. And then, on the other week they are switch the methods. With the existing curriculum system, the scheduling of subjects at SMK Telkom Bandung is a complex and quite difficult problem. This is due to several factors that must be considered, including the number of classes used, the number of subjects available, and some teachers who cannot teach at certain hours which often becomes a problem in the scheduling process. The design of the wrong scheduling system can cause problems for both teachers and students.

For scheduling, SMK Telkom Bandung works on the scheduling process manually. In this way, many problems are encountered especially the discrepancy between the schedule of teacher for one subject and another, and then the discrepancy between class availability and the number of time slots. Therefore, a Scheduling Application for SMK Telkom Bandung was created using a Website-Based Genetic Algorithm that it is able to provide output in the form of an automatic scheduling system that provides solutions to schedules that are out of sync between the needs of teachers and students.

The test results of this system when testing the algorithm, crossover rate and mutation rate at a value of 0.1 to 1 produce the best fitness value with an average execution time that is 14.42990657 seconds. In alpha testing, got a value of 100% which indicates the features in the system are running well. Besides that, this system gets 81.90% results from 35 respondents in beta testing which means the user agrees that this system is feasible to use.

Keywords: Scheduling, Genetic Algorithm, Alpha Testing, Beta Testing.