**Table 1 Summary of Literature Studies**

Abbreviations used in the summary table: (Pop**-Population Size,** Gen**-Number of Iteration,** Sm**-Selection method,** Cr-**Cross over rate,** Cm**-Cross over method,** Mr**-Mutation rate,** Mm**-Mutation method,** Em**-Encoding method,** InTemp**-Initial Temperature)**

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| **Sl. No.** | **Authors** | **Method used** | **Parameters** | **Results** |
| 1 | *Lin et al.[23], 2000* | GA | Gen-10, Pop-1000Em-Binary, Sm-Random, Cm-Two point, Cr-0.9, Mm-One point, Mr-0.02 | GA can reduce the time required for lengthy testing of Software by automatic test case generation for path testing. |
| 2 | *Hermadi et al.[26,5], 2003, 2007* | GA | Gen-100, Pop-30, En-Binary, Sm-Roulette Wheel, Cm-one point, Cr-0.5,0.9, Mr-0.1,0.3 | Results are more effective with multiple paths at a time. |
| 3 | *Mansour et al. [15], 2004* | GA, SA, KA | En-Real encoding, Cr=0.7, r=0.1, Sm-Random | SA based method is able to test more paths than GA and KA. |
| 4 | *Chen et al. [24],2008* | MPGA  (Multi Population GA) | Gen-400, Pop-1000En-Binary, Sm-Roulette wheel, Cm-one point, Cr-0.9, Mm-One point, Mr-0.02 | MPGA can generate test data more effectively than Normal GA for path testing. |
| *5* | *Yan et al.[19], 2008.* | Realizable complexity (Rc), CFG, CC | **-** | The method can generate a set of feasible paths of a SUT having Rc=V(G) |
| *6* | *Srivastava et al.[4]2009,* | GA | Gen-3, Pop-4En-Binary, Sm-Random, Cm-Pair wise, Cr-0.8, Mm-flip, Mr-0.3 | Testing efficiency becomes more by refining effort and cost estimation at the time of testing. |
| *7* | *Shimin et al. [25], 2011* | GA | En-Binary, Pop-100, Cm-One point, Mm-Uniform | The redundancy of test data is reduced and the efficiency of test data generation is improved. |
| *8* | *Lam et al[39], 2012* | ABC | **-** | The method can solve the common local optima problem and the test case generation is faster, efficient , but the test suite is not optimized due to presence of redundant test data |
| *9* | *Latiu et al. [13], 2012* | **GA** | **Gen-100, 1000, En-Binary, Pop-40 Cm-One point, Cr-0.75, Mr-0.1** | SA convergence faster than GA and PSO. The quality of test data produced by SA is higher than other methods |
| **SA** | **Intemp-100, 400, Epsilon-0.001, Alpha-0.999** |
| **PSO** | **Particle-40,W=0.796, C1=C2=1.4962, Gen-100, 1000** |
| *10* | *Zapata et al. [21], 2013* | Flow Graph | **-** | Basic path testing analysis is done for SoS and the proposed technique can generate a test suite. |
| *11* | *Boopathi et al.[40], 2014* | GA | En-Real Numbers, Sm-Random, Cm-Arithmetic, Cp-0.6 - 0.8, Mm-Insertion, Pm-0.0 - 0.2 | Marcov Chain with GA based method generate the most critical path of a specific SUT |
| *12* | *Ghiduk, et al. [41], 2014* | *Variable length GA* | En-Binary, Sm-Roulette-wheel, Cm-One point, Cr-0.80, Mr-0.15 | Proposed technique has the ability to generate feasible paths and causes a substantial reduction in path generation effort. |
| *13* | *Huang et al. [42]., 2014* | IPSO  (PSO+GA)  SAF-GPSO | C1=c2=2  W=0.8 Gen-400  Pop=50, Mm-Gaussian | Experimental Result shows that multiple path test data can be generated very quickly than PSO |
| *14* | *Yao et al. [45], 2015.* | GA | Gen-50,000, En-Binary, Pop-300 Sm- Roulette wheel, Cm-One point, Cr-0.6, Mm-One point, Mr-0.1 | The proposed method needs less time consumption than random method. |
| *15* | *Garg et al.[43], 2015.* | SGA, HGA | Gen-10, En-Binary, Pop-40,Sm-Binary tournament, Cm-Two point, Cr-0.8 Mm-One point, Mr-0.03 | In both techniques the critical path cannot be covered and the result is better than random search method. |
| *16* | *Biswas et al. [44], 2015* | ACO | **-** | The method can cover all program paths with minimal redundancy and prioritize the path in such a manner that errors can be found in earlier stage of testing. |
| *17* | *Khan et al[46], 2016.* | GA | En-Binary, Sm-Random Cm-Two point, Cr-0.8 Mm-One point, Mr-0.2 | Produce a number of useful test cases to test 100% path coverage for a SUT |
| *18* | *Thi et. al. [47],2016* | Improved GA | En-Binary, Sm-Random, Cm-Two point, Cr-0.5, Mr-0.1 | Improved GA can generate test data which are not covered by normal GA |
| *19* | *Han et al. [22], 2016* | MP-PSO  (Multiple Path-PSO) | W=0.5+rand/2, C1=C2=2, Gen=100 | The proposed method is more effective and efficient than SPSO. Total coverage is achieved only after increasing the population size |
| *20* | *Zhu et al.[30], 2017,* | GA | Gen-100, En-Binary, Pop-20, Sm-Roulette-wheel, Cm-One point, Cr-0.9 Mm-One point, Mr-0.3 | The experimental result shows very good performance in generating a set of test data for multiple path in SBST |
| *21* | *Khari et al.[48], 2017* | ABC, CSA | **-** | The proposed ABC based method offers better path coverage in comparison to CSA. |