A fuzzy logic prediction model for fresh and hardened properties of self-compacting concrete (SCC) containing fly ash and polypropylene fibers has been developed. Materials studied experimentally contained 0 %, 10 %, 20 % and 30 wt. % fly ash replacing cement, with four fiber contents at 3, 6, 9 and 12 kg/m³ in each concrete. Water/cement ratio and superplasticizer content were kept constant at 0.40 % and 1.0 % of cement content, respectively. In our models, properties of fresh and hardened concrete containing fibers, fly ash and cement content were predicted for fresh as well as a function of time for hardened concrete. The results obtained from the fuzzy logic prediction model were compared with the average results of the experiments and were found to be remarkably close to one another. Polypropylene fibers provide a reinforcement, the use of fly ash lowers environmental contamination, while satisfactory properties are obtained.