Fuzz-C™ is a stand-alone preprocessor that seamlessly integrates fuzzy logic into the C language. Now you can add fuzzy logic to your applications without expensive, specialized hardware or software. Fuzz-C accepts fuzzy logic rules, membership functions and consequence functions, and produces C source code that can be compiled by most C compilers, including the Byte Craft Limited Code Development System.

The preprocessor generates C code that is both compact and significantly faster than most current fuzzy logic commercial implementations—all with your favorite C compiler.

Fuzz-C provides a practical, unified solution for applications that require fuzzy logic control systems. Use your existing C libraries for program management, keyboard handlers and display functions without change; you can implement system control functions using fuzzy rules.

Fuzz-C is a flexible system that allows all data types supported by your C compiler. Standard defuzzification methods, such as center of gravity, max left, max right, and max average, are provided in source form. Fuzz-C lets you easily add new defuzzification methods.

/* Fuzzy Logic Climate Controller */

This single page of code creates a fully functional controller for a simple air conditioning system */

#define thermostat PORTA
#define airCon PORTB.7

/* degrees celsius */
LINGUISTIC room TYPE int MIN 0 MAX 50 {
  MEMBER cold { 0, 0, 15, 20 }
  MEMBER normal { 20, 23, 25 }
  MEMBER hot { 25, 30, 50, 50 }
}

/* A.C on or off */
CONSEQUENCE ac TYPE int DEFUZZ CG {
  MEMBER ON { 1 }
  MEMBER OFF { 0 }
}

/* Rules to follow */
FUZZY climateControl {
  IF room IS cold THEN
    ac IS OFF
  IF room IS normal THEN
    ac IS OFF
  IF room IS hot THEN
    ac IS ON
}

int main(void)
{
  while(1)
  {
    /* find the temperature */
    room = thermostat;
    /* apply the rules */
    climateControl();
    /* switch the A.C. */
    airCon = ac;
    wait(10);
  }
}