```
                    ┌─────────────────┐
                   (     Main()        )
                    └─────────────────┘
                             │
                             ▼
┌──────────────────┐   ┌──────────────────┐   ╱◇╲                        ┌──────────────────┐
│ Open "InputText.txt"│→│ Open              │→ ◇ Both Files Opened ◇ ─No→ │ Print "Could not  │
│ (user text input text│ │ "SingleStrokeFont.txt"│ ◇ Successfully?   ◇      │ open files" then  │
│ file)            │   │ ( raw stroke data)│   ╲◇╱                        │ return 1          │
└──────────────────┘   └──────────────────┘    │                        └──────────────────┘
                                               Yes
                                                │
                                                ▼
                       ┌──────────────────┐   ┌──────────────────┐
                       │ Scanf to read user│←─│ User input,       │
                       │ input            │   │ printf("Enter font│
                       └──────────────────┘   │ height in mm between│
                             │                │ 4-10: ")          │
                             ▼                └──────────────────┘
┌──────────────────┐    ╱◇╲                    ╱◇╲                        ┌──────────────────┐
│ Print "Invalid font│←No─◇ Valid User input? ◇─Yes→◇ Is COM port      ◇─No→│ Print "Unable to  │
│ height input" then │   ╲◇╱                    ◇ available?        ◇      │ open COM port" then│
│ return 1          │                          ╲◇╱                        │ exit 0            │
└──────────────────┘                            │                        └──────────────────┘
                                                ▼
╭──────────────────╮   ╭──────────────────╮   ┌──────────────────┐
│ While loop using  │←─│ Use SendCommands  │←─│ sprintf buffer with│
│ TexttoWordArray() (while│ │ Function for robot│   │ new line to wake  │
│ there are still words in the│ │ commands that initialise│ │ up robot. Wait for │
│ text file)        │   │ the robot.        │   │ dollar then Print  │
╰──────────────────╯   ╰──────────────────╯   │ "Robot is ready to │
     │                                         │ draw"             │       ┌──────────────────┐
     ▼                                         └──────────────────┘       │ Print "ASCII       │
┌──────────────────┐    ╱◇╲                    ┌──────────────────┐       │ conversion failed."│
│ Read the next word│→  ◇ Is the word array ◇─Yes→│ Print Empty word   │       │ Stop reading words │
│ into temporary array│  ◇ zero?            ◇    │ error, stop reading│       │ by exiting loop    │
└──────────────────┘    ╲◇╱                    │ words by exiting   │       └──────────────────┘
                                               │ loop              │                ▲
                                               └──────────────────┘               No
```

```
                                                                                                                              No
                          Increment words          Convert each letter to decimal         Did the letters get
                         processed counter       →     ASCII values using           →     converted to ASCII
                                                     WordArraytoASCII() function                properly?

   Convert the corrected         Resize and adjust the position of the                                Use ASCII values to get
  coordinate data into G code    letters to the correct coordinate system    Was stroked data found for    Stroke Coordinate Data,
       using the            ←    using the ScaleandAdjustStrokeData()   ←Yes←  every letter of the word?  ←   using ExtractStrokeData()
   ConvertStrokestoGcode()       function. Scale, move coordinates, wrap                                         function.
        function.                     text is necessary.
                                                                                        │ No
                                                                                        ▼
      Send these G code                                                          Print "Missing stroke data
Yes  commands to the buffer using      Move cursor right by                        for this word". Stop
       the SendCommands()         →   word spacing amount                         reading words by exiting
          function.                   (add to X coordinate)                              loop

                                                                        Print "word wrap occurred." Reset
   Is while loop (while there are still                                    cursor to start of line (X = 0) and
   words in the text file) still active?   Has cursor moved past    Yes→   move down by font height plus line
                                           95mm on this line?                        spacing.

            │ No                                  │ No
            ▼                                     ▼
   Send final pen up command to
   robot. print message to signify end   Free memory used for this
   of writing. Close text file, font file   word using the
        and COM port.                 ←  FreeStrokeData() Function   ←

            ▼
      End Main(). Program
```

End Main(), Program
finished successfully