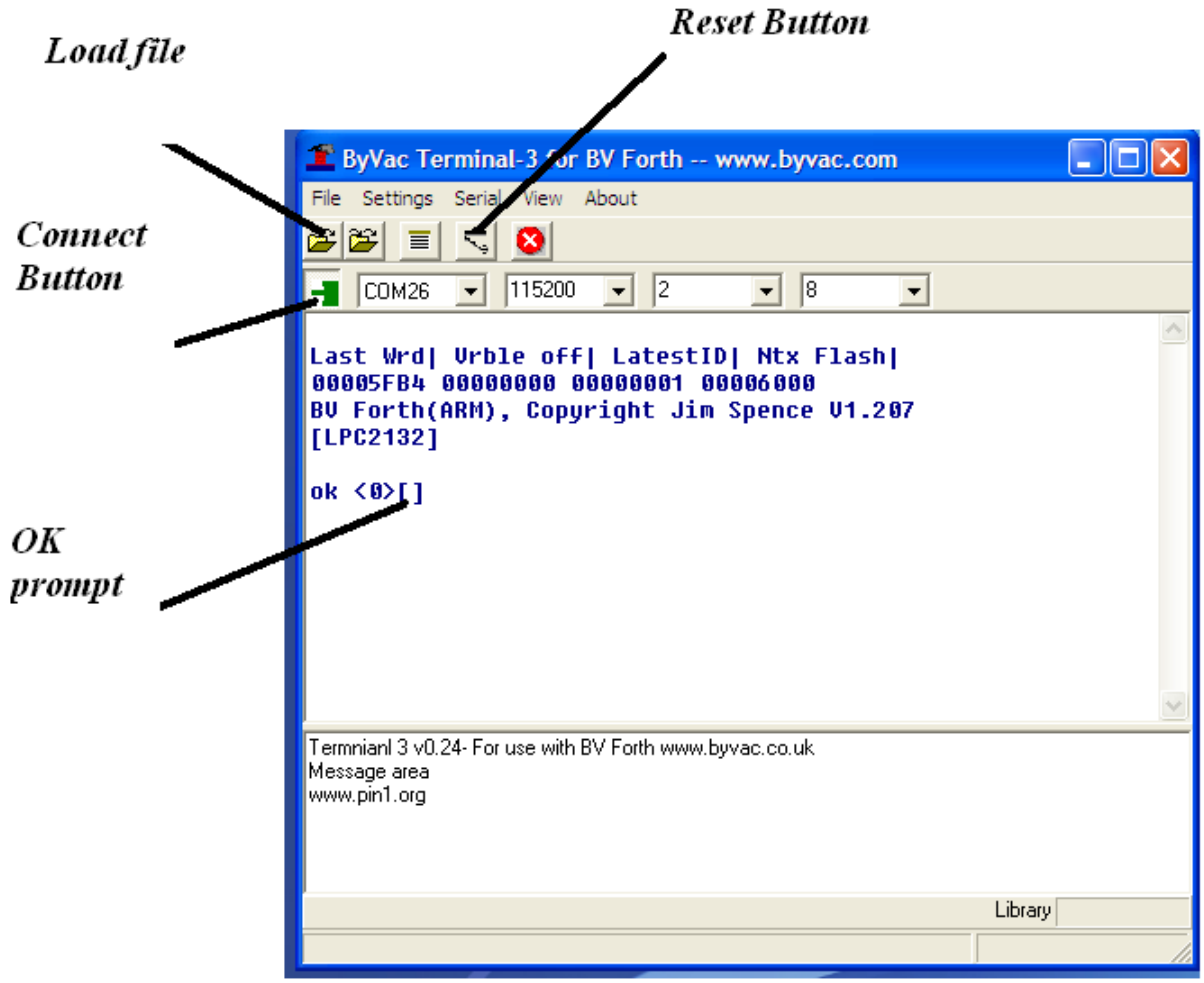
Software

Steps

1. **Install the ByVac terminal software**
2. **Connect the USB cable to the ByVac Micro controller. Open the ByVac terminal**
3. **Change the com port to the the updated port**
4. **Change the Baud rate to 115200**
5. **Press the connect button, Look for the OK prompt**
   If it doesn't appear, press the reset button.



7. **Load the file ST_school_kit.fth**

8. After Loading the file you will get the OK prompt back.

ok <0> [ ] Start
ok <0> [ ] calibrate
ok <0> [ ] tell motor1 0 moveto

The Motor1 will move approximately 0 degrees and you can see the rotation. Try this command on other motors.

A bit more about the software

The software is written in FORTH. In forth the program for doing small jobs is known as “word”. In other programming languages it is “functions”.

You can create your own words using the existing words in the forth file. Most common example.

```
: PICK


TELL MOTOR1 0 MOVETO
TELL MOTOR2 140 MOVETO
GRIP

;
```

“Pick ” is the word created using various motor movement. You can change it and save it before loading.
“tell”,”motor1”.”grip” are already existing words.
“Grip” will grip the object between those two gripping motors.
See another word.

```
: DROP

TELL MOTOR1 180 MOVETO
TELL MOTOR2 130 MOVETO
TELL MOTOR3 180 MOVETO
UNGRIP

;
```

Once you understand this program, you can do many things with your

robotic arm...
Please don't use the same word names in the interfacing layer for writing your program

Don't use the following names for your words.
The wordlist in the ST Robotics library

1. **Tell**
   Needs to be used along with "motor" number and moveto

2. **move**
   Move the motors, from present location+ given parameter location.
   Eg: tell motor1 10 move
   Assume the present location is at 50 degree, after executing the command the motor will be at 60 degree.

3. **Moveto**
   Move the motors to that degree, automatically incremented to the desired location

Eg: tell motor1 80 moveto

Assume the present location is 90 degree. Then after the above command, it will move to 80 degree. Assume the present location is 45 degree, then after executing the command the motor will be at 80 degree.

4. **Calibrate**
   Set of motor movements are programmed.

5. **start**

Initialize some values for the program, it is **must** after the download command.

6. **where**
   Tells the position of the servo motors.

7. **servocontrol**
   Internal word for the movement of motors.

8. **motor1**
   For moving motor1 use this word along with “tell” and “moveto”

9. **Motor2**
   For moving motor2 use this word along with “tell” and “moveto”

10. **motor3**
   For moving motor3 use this word along with “tell” and “moveto”

11. **grip** - grips the item inside the fingers
12. **ungrip –** ungrips the item in the fingers

13. **setspeed**
   speed can be controlled using the setspeed command
   don't use more than 50 as the speed
   Eg: 50 SETSPEED