result

June 14, 2023

[15]:
```
# Open the file
f = open('data.txt', 'r')

# Read all lines
all_lines = f.readlines()

# Close the file
f.close()

# Store the data
data = []
# Print the lines
for line in all_lines:
    data.append(line.split('#')[1])

print(data)
```

```
['00000000000000000000001000000000000100000000010000000000000000000000000000
0000000000000000100', '00000000001000000000000000000000001000000000000000
00000000000000000000000000000000000000000001', '00001000100100000000000001000
00000100000000000010000000001001000000000100100000000010000000000', '000000
00000000010010000000000000000000000000000000010010000000000000000000000000
00000000001000000000000000000000000000000000100100000000000', '000000000000
00000000100010010000000000000000000000000000010010001001000000000000000000
00000000000000000000000000001000100100010010000000000000000', '000000000000000010
01000100000000000000000000000000000000000001001000100000000000000000000010001
00000010010001000000000000000000000000000000000000', '00000000000000000000000
00000000000000000000000000000000000100010000000000000000000000000000000000000
00000000000000000000000000000000000000010001']
```

[16]:
```
import matplotlib.pyplot as plt
import numpy as np

# y axis
y1 = np.arange(0, 100, 1)
y2 = np.arange(0, 150, 1)
```

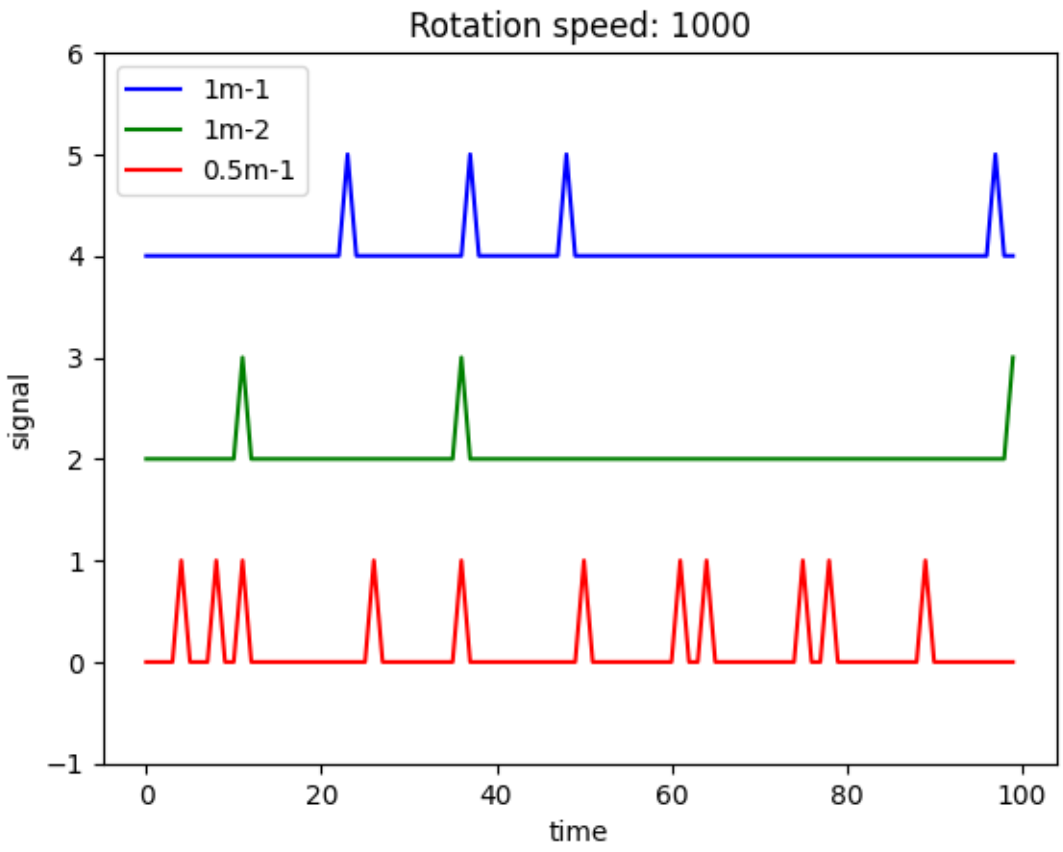
[26]:
```
# Case 1
x1_1 = [int(char)+4 for char in data[0]]
x1_2 = [int(char)+2 for char in data[1]]
x1_3 = [int(char) for char in data[2]]

# Create a figure and axis
fig, ax = plt.subplots()

# Plot a line chart
ax.plot(y1, x1_1, label='1m-1', color='blue', linestyle='-')
ax.plot(y1, x1_2, label='1m-2', color='green', linestyle='-')
ax.plot(y1, x1_3, label='0.5m-1', color='red', linestyle='-')

# Set labels and title
ax.set_xlabel('time')
ax.set_ylabel('signal')
ax.set_title('Rotation speed: 1000')
plt.ylim(-1, 6)
# Add a legend
ax.legend()

# Show the plot
plt.show()
```



[28]:
```
# Case 2
x2_1 = [int(char)+4 for char in data[3]]
x2_2 = [int(char)+2 for char in data[4]]
x2_3 = [int(char) for char in data[5]]
x2_4 = [int(char)-2 for char in data[6]]

# Create a figure and axis
fig, ax = plt.subplots()

# Plot a line chart
ax.plot(y2, x2_1, label='1m-1', color='blue', linestyle='-')
ax.plot(y2, x2_2, label='1m-2', color='green', linestyle='-')
ax.plot(y2, x2_3, label='0.5m-1', color='red', linestyle='-')
ax.plot(y2, x2_4, label='0.5m-2', color='black', linestyle='-')

# Set labels and title
ax.set_xlabel('time')
ax.set_ylabel('signal')
ax.set_title('Rotation speed: 650')
```

```
plt.ylim(-3, 6)
# Add a legend
ax.legend()

# Show the plot
plt.show()
```