nipolar-return-to-zero-line-coding

March 29, 2024

[71]:
```
import numpy as np
import matplotlib.pyplot as plt
```

[99]:
```
N = 10
n = np.random.randint(0, 2, N)
n
```

[99]:
```
array([0, 1, 0, 1, 0, 1, 1, 1, 0, 0])
```

[112]:
```
t = np.arange(0, N, 0.01)
nn = [1 if bit == 1 else 0 for bit in n]
nn = np.repeat(nn, int(len(t)/N))
#nn
```

[114]:
```
t = np.arange(0, len(n), 0.01)
print(len(t))
#t
```

```
1000
```

[115]:
```
y = np.zeros(len(t))
len(y)
```

[115]:
```
1000
```

[116]:
```
i = 1
a = 0
b = 0.5
```

[117]:
```
for j in range(len(t)):
    if t[j] >= a and t[j] <= b:
        y[j] = nn[j]
    elif t[j] > b and t[j] < i:
        y[j] = 0
    else:
        i = i + 1
        a = a + 1
        b = b + 1
```

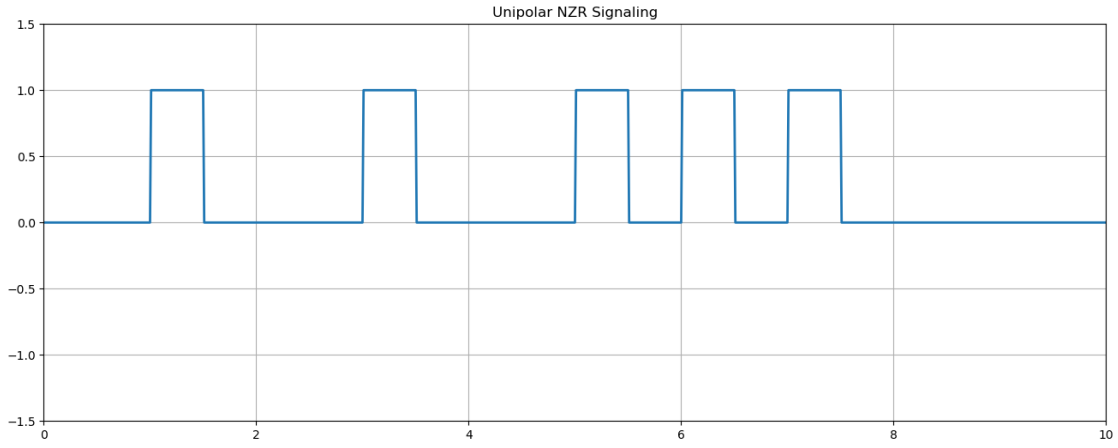
[ ]:

[118]:
```
print(n)
```

```
[0 1 0 1 0 1 1 1 0 0]
```

[119]:
```
plt.figure(figsize=(16, 6))
plt.plot(t, y, linewidth=2)
plt.axis([0, N, -1.5, 1.5])
plt.grid(True)
plt.title('Unipolar NZR Signaling')
```

[119]:
```
Text(0.5, 1.0, 'Unipolar NZR Signaling')
```



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