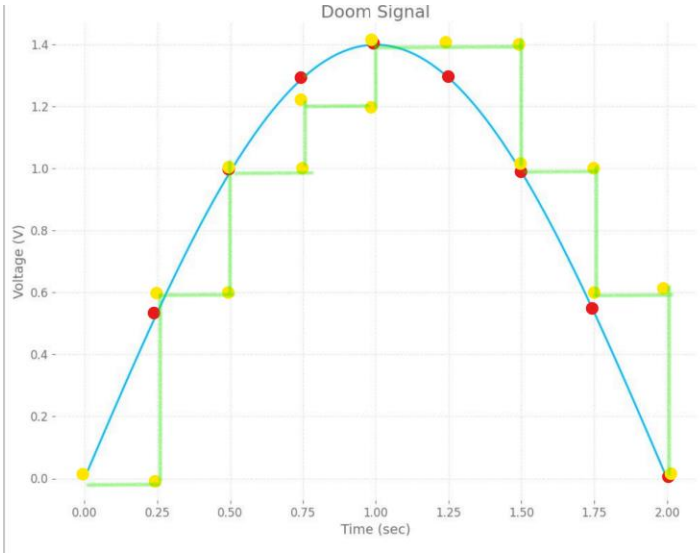
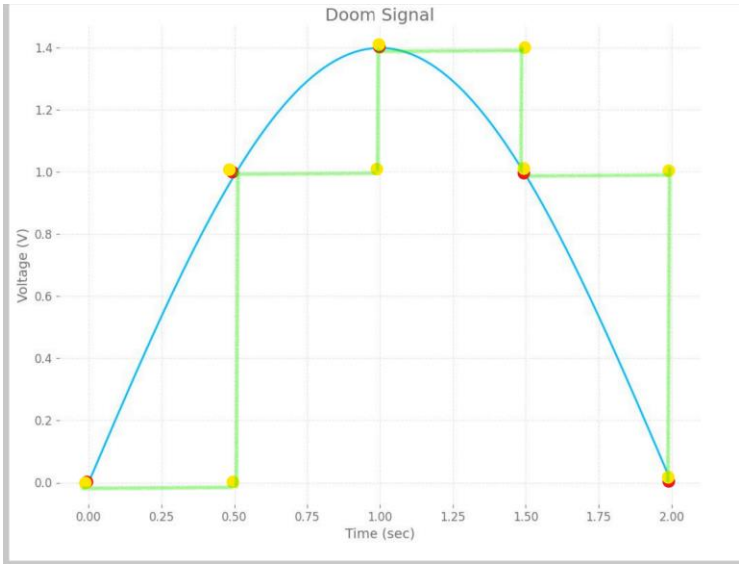
Case 1:

8 level , sampling time =,25s



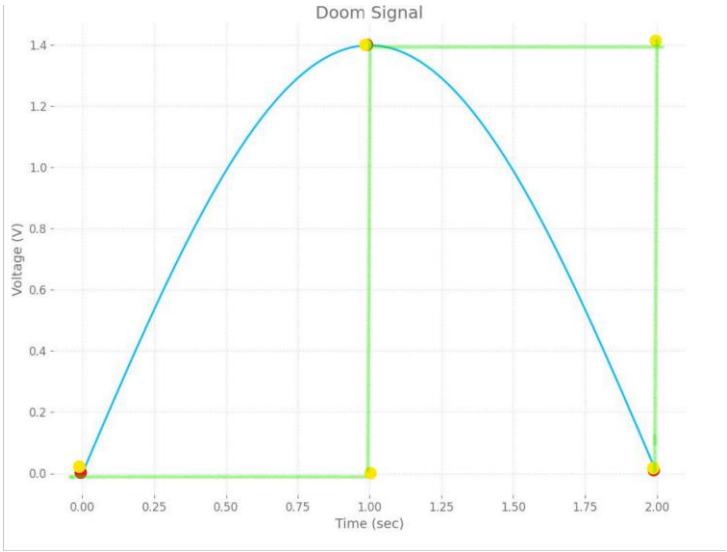
Case 2:

8 level , sampling time =,5s



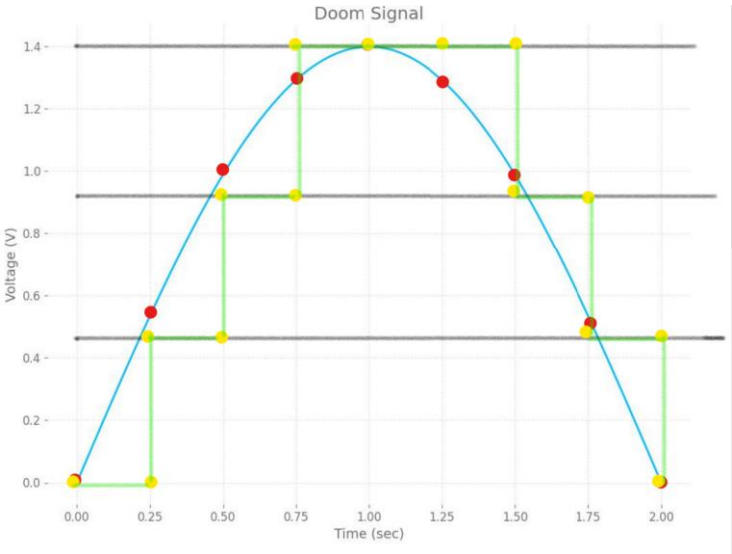
Case 3:

8 level , sampling time =1s



Case 4:

4 level , sampling time =.25s



Conclusion Summary:

1. **Sampling Time**:
    - **Shorter Sampling Time** (e.g., 0.25 sec) captures more details of the analog signal, resulting in a more accurate digital representation.
    - **Longer Sampling Time** (e.g., 1 sec) reduces the number of samples, potentially losing important information, especially for high-frequency signals.
2. **Bit Resolution**:
    - **Higher Bit Resolution** (e.g., 3-bit encoder) provides more quantization levels, leading to a finer and more precise digital representation.
    - **Lower Bit Resolution** (e.g., 2-bit encoder) reduces the number of quantization levels, increasing quantization error and decreasing accuracy.