

Documentation on

Simulation using MATLAB and SIMULINK

Topic: Multiplexing of two Signals

Prepared by

K. R. Deepthi, Assistant Professor, ECE

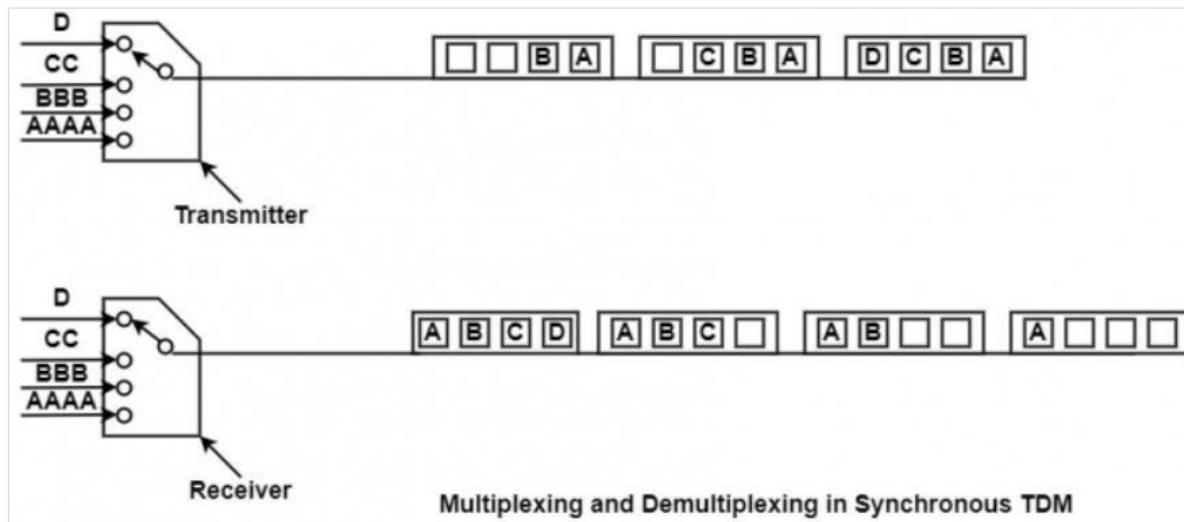
Department of Electronics and Communication Engineering



Multiplexing of Two Signals

TDM devices can manage the source of various data rates. This is completed by authorising fewer slots per cycle to the passive input devices than the rapid device.

Both multiplexing and demultiplexing operations for synchronous TDM, are demonstrated in the figure given below



Clear Goals:

1. To explain the process of multiplexing of two signals
2. To give hands on exposure on MATLAB and Simulink

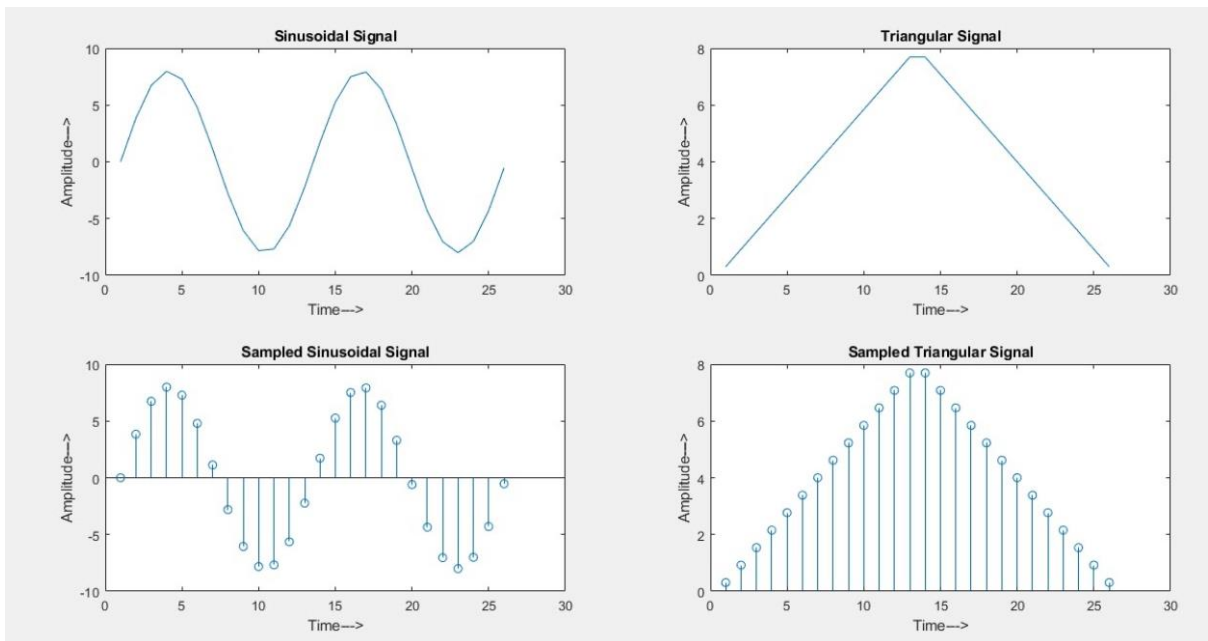
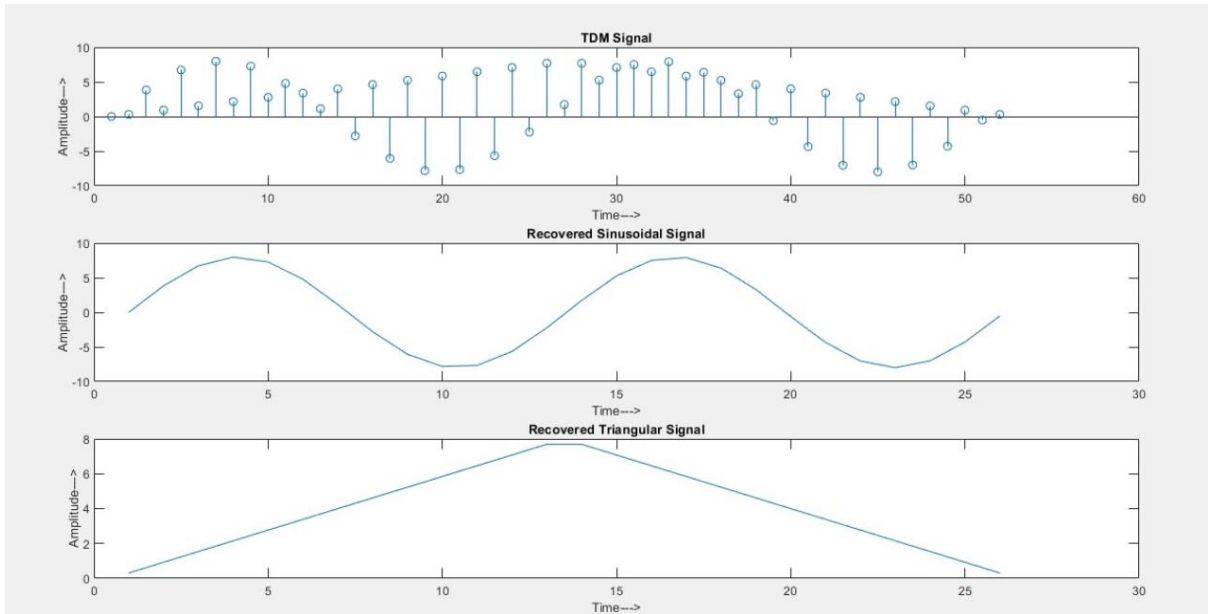
%Program for time division multiplexing and demultiplexing Using MATLAB

```
clc;
close all;
clear;
% Signal generation
t = 0:.5:4*pi; % Signal taken upto 4pi
sig1=8*sin(t); % Generate first signal
l1=length(sig1);
sig2=8*triang(l1); % Generate Second Signal
% Perform time division multiplexing
for i=1:l1
sig(1,i)= sig1(i); % Making both row vector to a matrix
sig[(F1,S1), (F2,S2), (F3,S3).....]
sig(2,i)= sig2(i);
end
tdmsig=reshape(sig,1,2*l1); % TDM of both quantize signal
% Perform Demultiplexing
demux=reshape(tdmsig,2,l1);
```

```

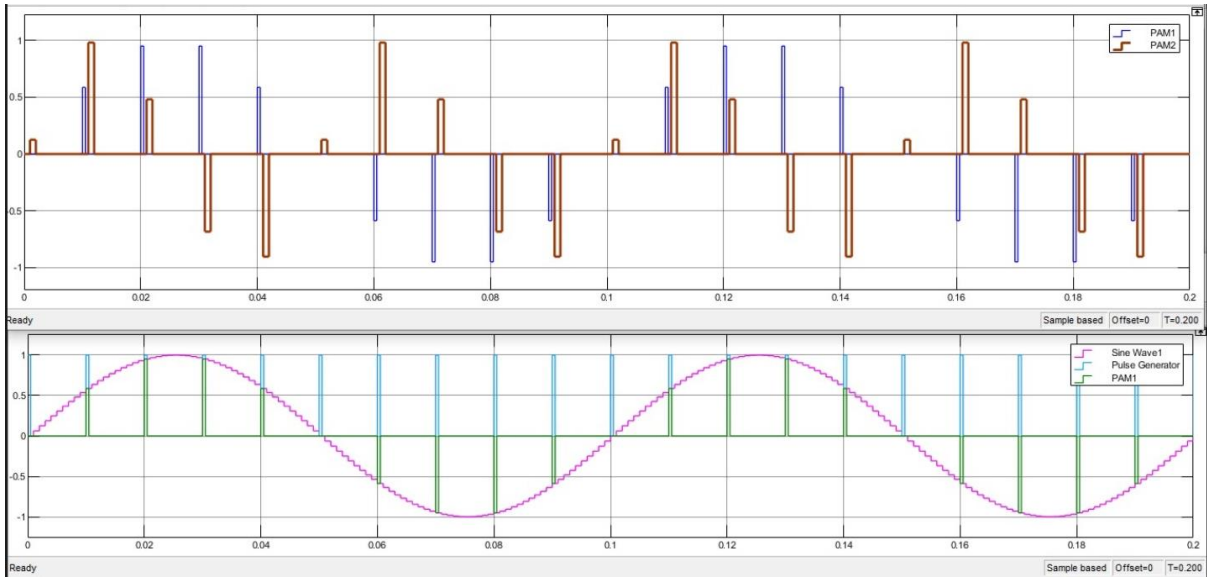
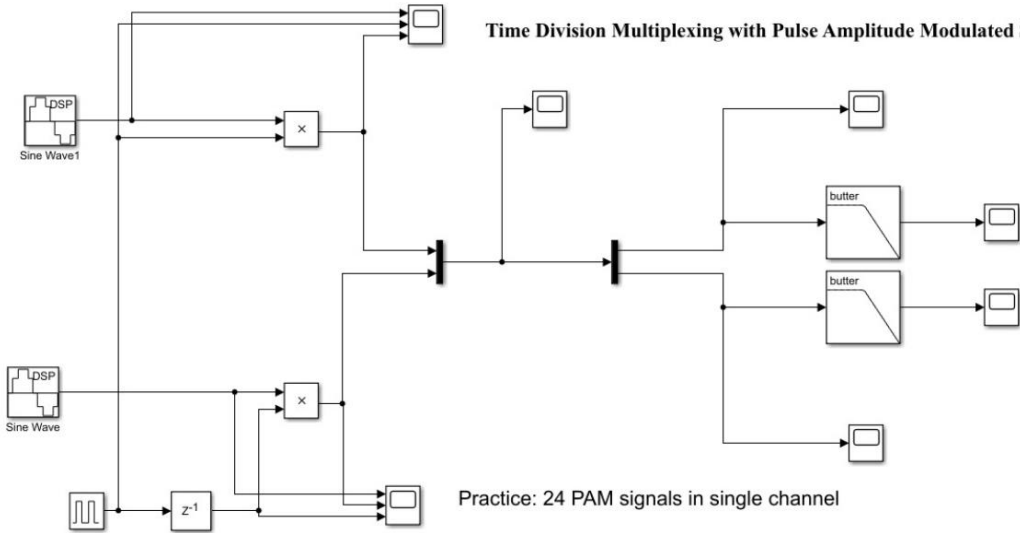
for i=1:11
demultdm1(i)=demux(1,i); % Converting The matrix into row vectors
demultdm2(i)=demux(2,i);
end
figure(1);
% Display First Signal
subplot(2,2,1);
plot(sig1);
title('Sinusoidal Signal');
ylabel('Amplitude--->');
xlabel('Time--->');
% Display Second signal
subplot(2,2,2);
plot(sig2);
title('Triangular Signal');
ylabel('Amplitude--->');
xlabel('Time--->');
% Display Sampled version of First Signal
subplot(2,2,3);
stem(sig1);
title('Sampled Sinusoidal Signal');
ylabel('Amplitude--->');
xlabel('Time--->');
% Display Sampled version of Second Signal
subplot(2,2,4);
stem(sig2);
title('Sampled Triangular Signal');
ylabel('Amplitude--->');
xlabel('Time--->');
figure(2);
% Display TDM Signal
subplot(3,1,1);
stem(tdmsig);
title('TDM Signal');
ylabel('Amplitude--->');
xlabel('Time--->');
% Display of demultiplexed signal
subplot(3,1,2);
plot(demultdm1);
title('Recovered Sinusoidal Signal');
ylabel('Amplitude--->');
xlabel('Time--->');
subplot(3,1,3);
plot(demultdm2);
title('Recovered Triangular Signal');
ylabel('Amplitude--->');
xlabel('Time--->');

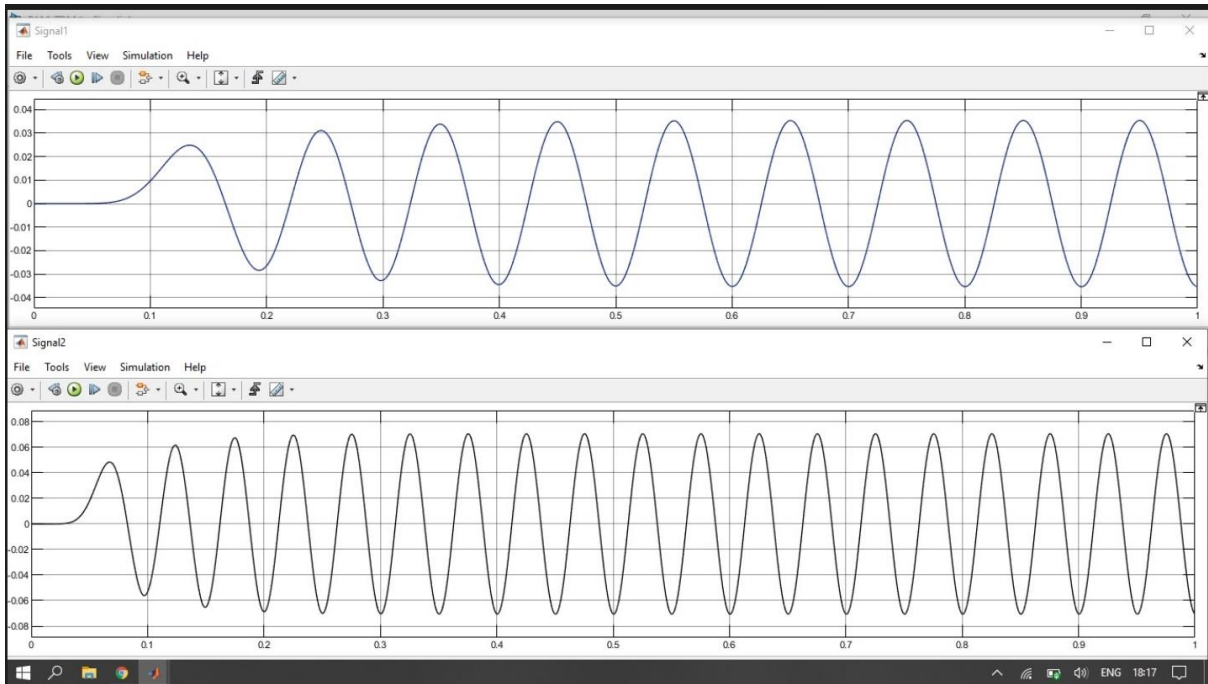
```



%Program for time division multiplexing and demultiplexing Using SIUMULINK

Time Division Multiplexing with Pulse Amplitude Modulated Signals





For any queries/ feedback Kindly contact

Mrs K.R. Deepthi,

Assistant Professor,

Department of ECE.

Mail ID: r.deepthi@staff.vce.ac.in

Phone No: 9493550926