

School of Electronics and Communication Engineering

Academic Year 2020 - 2021

Second Year B. Tech. (ECE)

Analog Communication Course Code: ECE212A

Mini Project Report - Trimester VI

AM (DSB-FC)

Name of Students:

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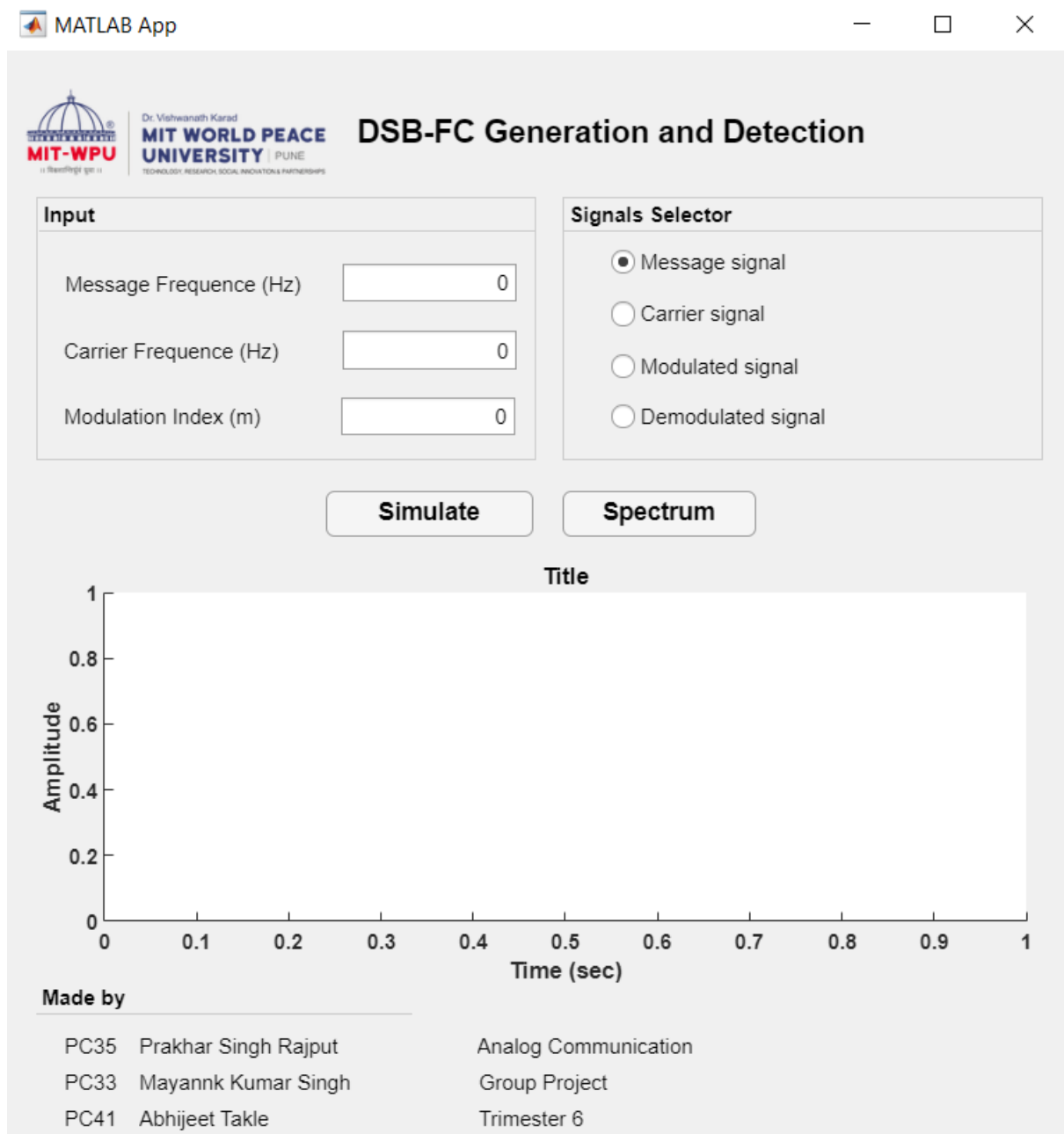
Aim: To create a GUI for AM(DSB-FC) using MATLAB and Simulink

Objective:

1. To generate the AM (DSB-FC) signal and acquire the baseband signal using demodulation.
2. To observe the waveforms of modulating signal, carrier signal and AM signal on CRO/DSO.
3. To demodulate the AM signal by using simple and practical diode detector.
4. To observe the effect of change in amplitude of modulating signal on the recovered (or demodulated) waveform.

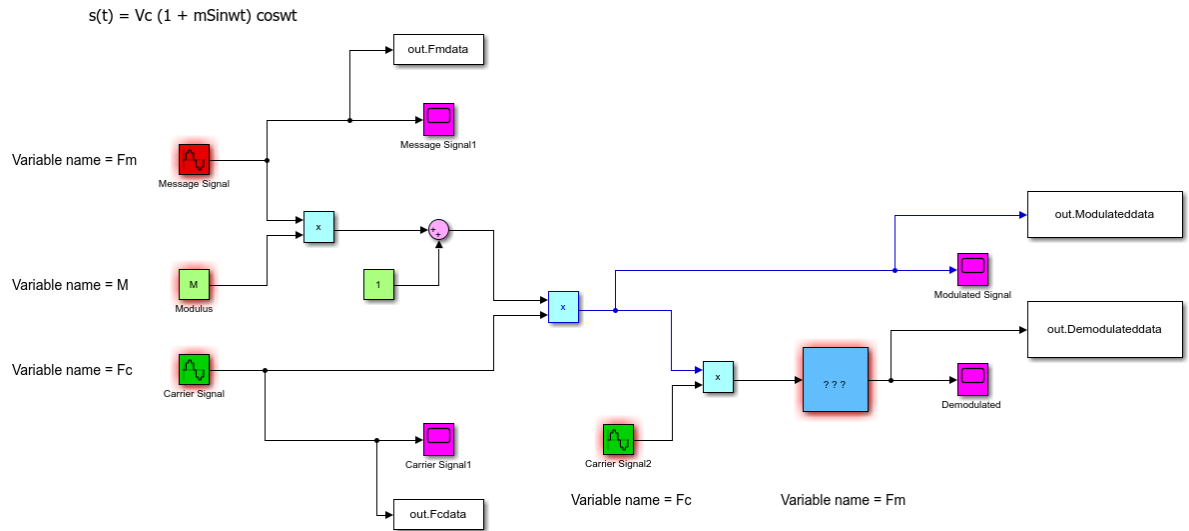
Screen shots:

1. Actual Implementation (Front View)

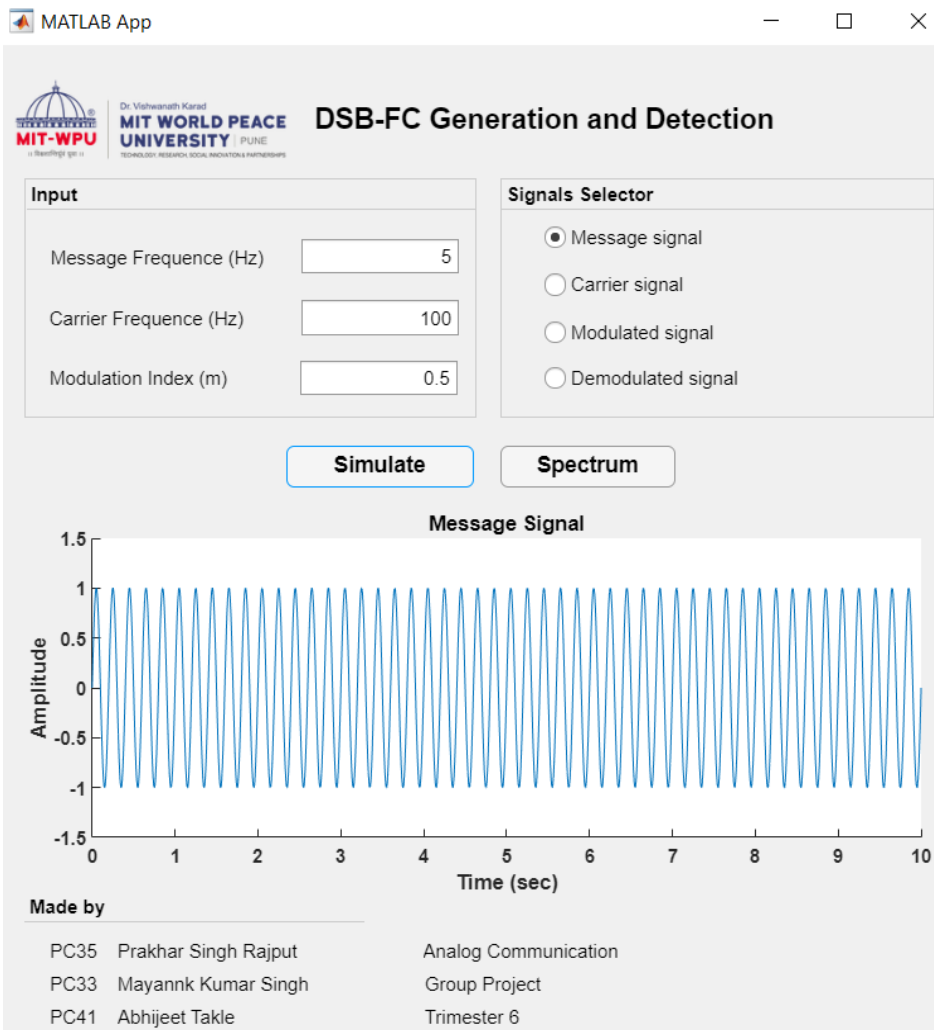


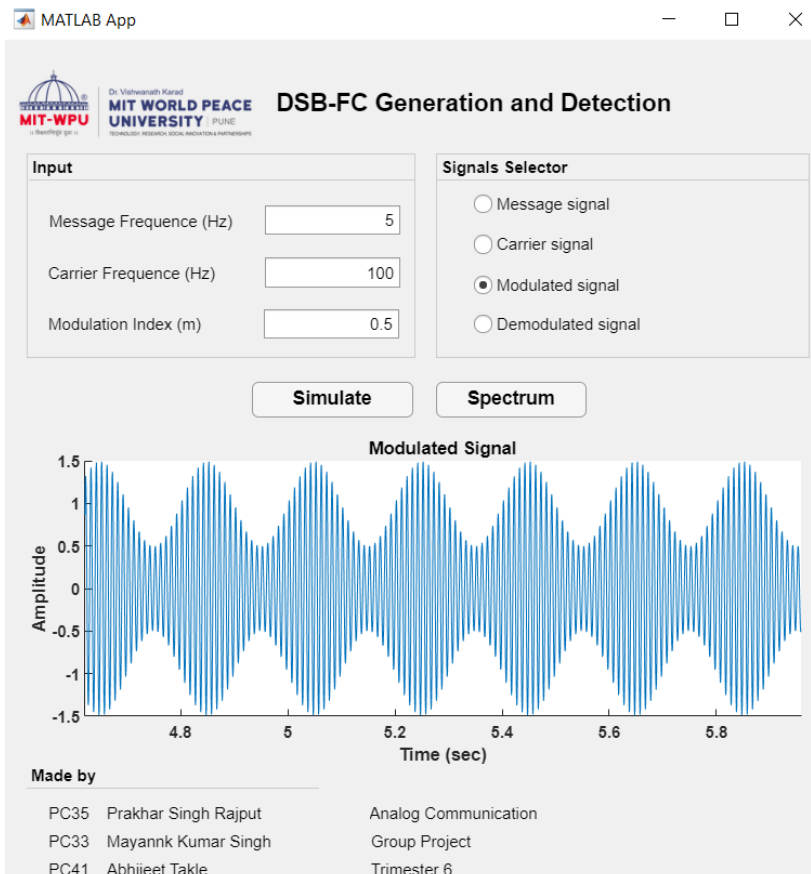
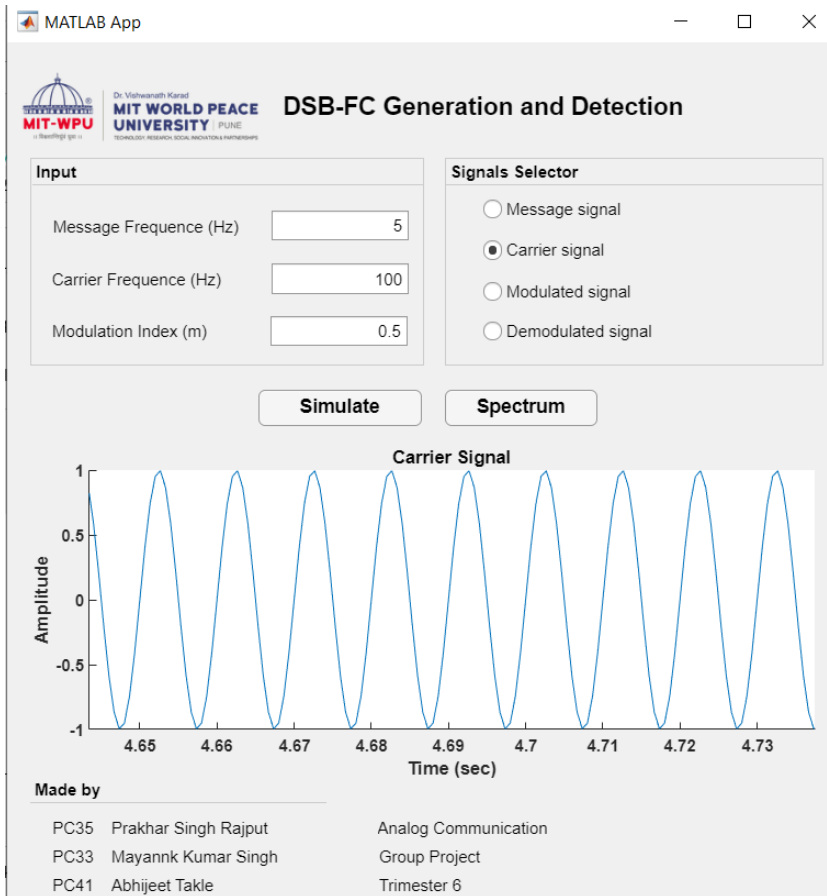
2. Simulink file

DSB-FC Generation and Detection

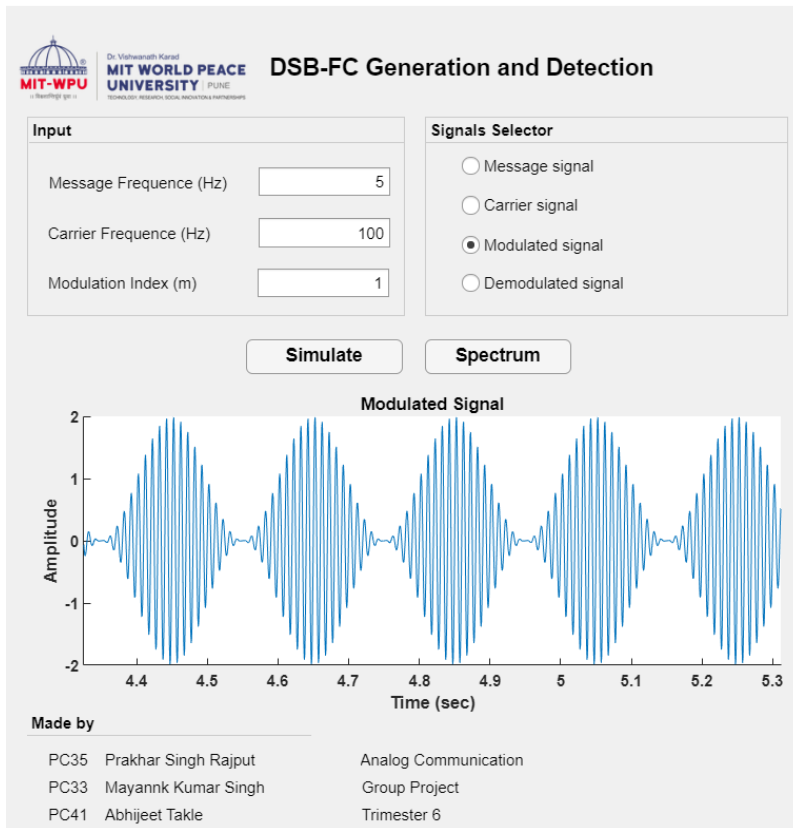


3. Outputs

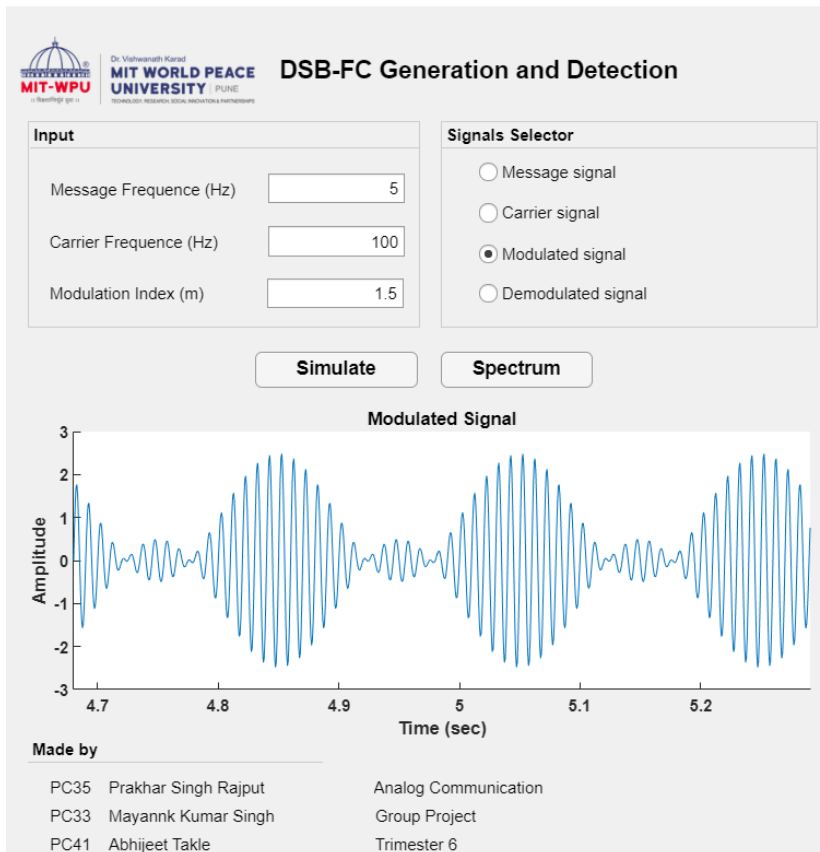




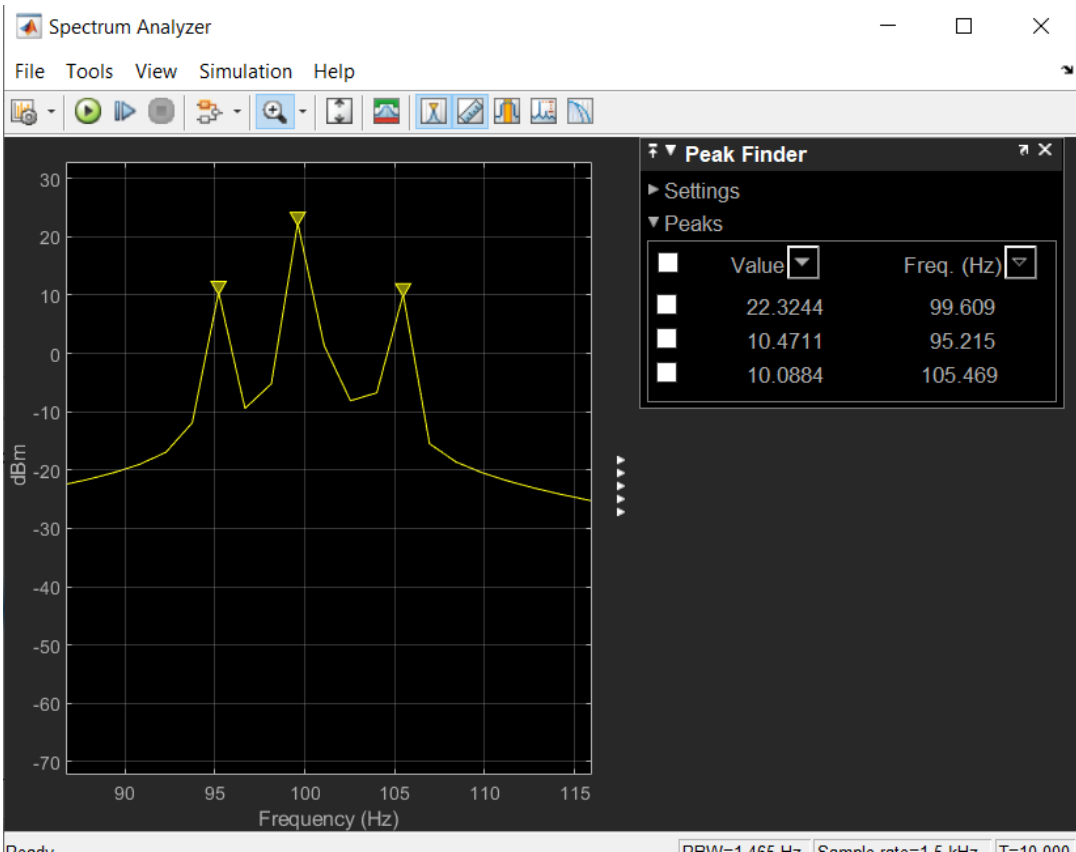
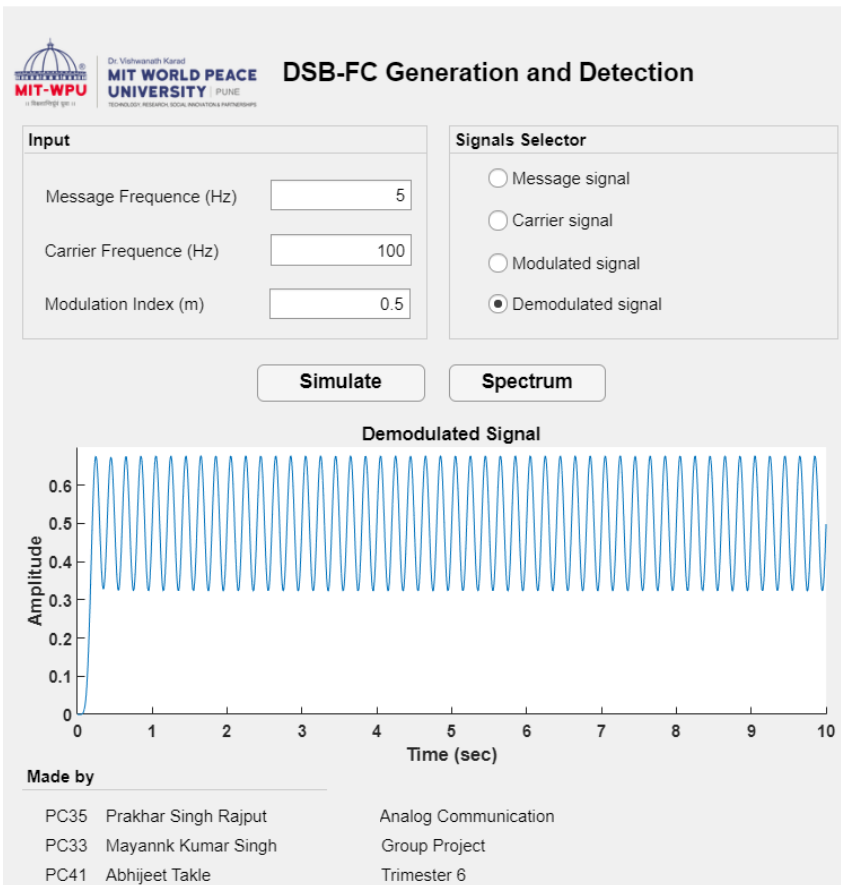
MATLAB App



MATLAB App



MATLAB App



4. Program

```
% Button pushed function: Simulate
function SimulateButtonPushed(app, event)
    assignin('base','Fm',app.Fm.Value);
    assignin('base','Fc',app.Fc.Value);
    assignin('base','M',app.M.Value);

    simout = sim('fullmodel');
    if(app.MSignal.Value == 1)
        plot(app.Axis1,simout.Fmdata.time,simout.Fmdata.Data);
        title(app.Axis1,'Message Signal');

    elseif(app.CSignal.Value == 1)
        plot(app.Axis1,simout.Fcdata.time,simout.Fcdata.Data);
        title(app.Axis1,'Carrier Signal');

    elseif(app.ModulatedSignal.Value == 1)
        plot(app.Axis1,simout.Modulateddata.time,simout.Modulateddata.Data);
        title(app.Axis1,'Modulated Signal');

    elseif(app.DemodulatedSignal.Value == 1)
        plot(app.Axis1,simout.Demodulateddata.time,simout.Demodulateddata.Data);
        title(app.Axis1,'Demodulated Signal');
    end
end

% Button pushed function: SpectrumButton
function SpectrumButtonPushed(app, event)
    assignin('base','Fm',app.Fm.Value);
    assignin('base','Fc',app.Fc.Value);
    assignin('base','M',app.M.Value);

    sim('spectrum');
end
```

5. Conclusion:

We successfully generated the AM (DSB-FC) signal and acquire the baseband signal using demodulation using GUI in MATLAB.

References:

- 1] Mohsenin, D. N. Truong, and B. M. Baas, "A low-complexity message-passing algorithm for reduced routing congestion in LDPC decoders," IEEE Trans. Circuits Syst., vol. 57, no. 5, pp. 1048–1061, May 2010.
- 2] <https://www.youtube.com/watch?v=w9U0JKK6Pik&t=753s>
- 3] <https://www.youtube.com/watch?v=ThS6xllOy9Y>