Learning Report – MBSE

LTTS GLOBAL ENGINEERING ACADEMY

L&T Technology Services

Version Number:99003563
Team Members :1
Team No: 1
Module: Model Based System Engineering

Ver. Rel. No.	Release Date	Prepared. By	Reviewed By	Approved By	Remarks/Revision Details
1	11.02.2021 13.02.2021	Saloni Adanna 99003563		Bhargav N	Automation Script Algorithm develop
	14.07.2021 15.02.2021	Saloni Adanna 99003563		Bhargav N	Differential & Difference Equation, its Application
	16.02.2021 17.02.2021	Saloni Adanna 99003563		Bhargav N	Project & Onramps

Contents

INDIVIDUAL WORK 4
ACTIVITY 1 – AUTOMATION SCRIPT 4
ACTIVITY 2 – ALGORITHM DEVELOPMENT 6
ACTIVITY 3 – DIFFERENTIAL EQUATION 11
ACTIVITY 4 – DIFFERENCE EQUATION 14
ACTIVITY 5 – AUTOMOTIVE BODY CONTROL MODEL 15
ACTIVITY 6 – ONRAMPS 27

INDIVIDUAL WORK

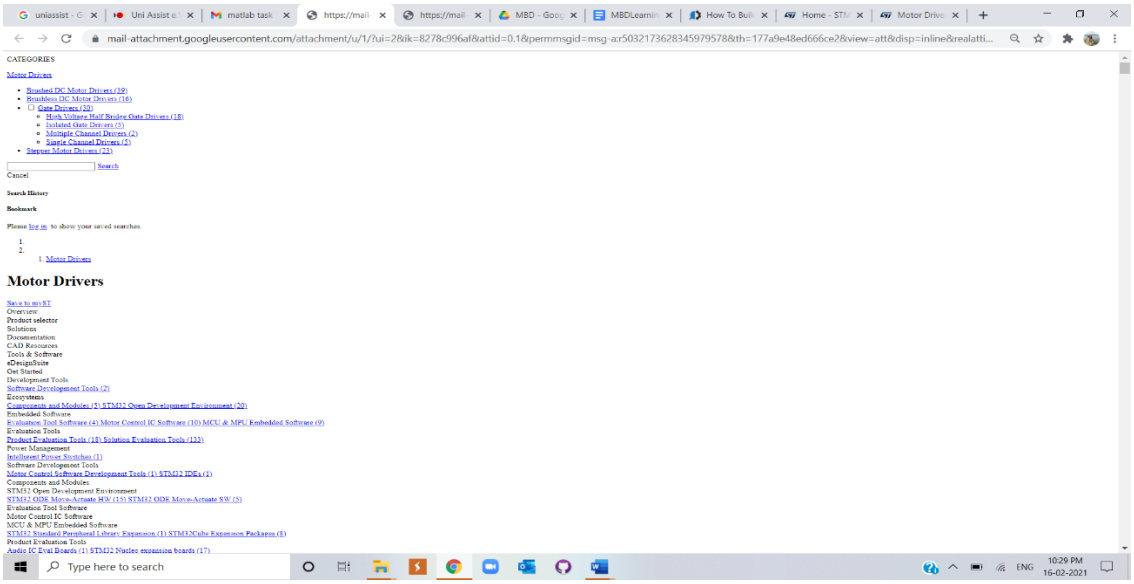
ACTIVITY 1 – AUTOMATION SCRIPT

(File -AutoScript.m)

Script automation is the process of using automation software to leverage existing scripts to perform automation in a managed framework without having to do custom script development and sustaining going forward. This enables automation scripts without code by using sophisticated automation development to eliminate the need for writing and managing code, exceedingly reducing development costs and timelines. The batch files and scripts have been utilized to automate task-oriented processes across homo- and heterogeneous computing environments. Scripts are written to bring out routine, important jobs which include backing up/clearing event logs, automating networking tasks, monitoring system performance, reading/writing to the registry, as well as managing various user accounts, computer accounts, printers, applications and services.

One of the most popular uses of script automation is to automate web browser tasks. Eventually, that was done by writing scripts, but today this automation can be done 100 percent without the need to write scripts i.e. Automate. With Automate, this is setup web browser automation for your organization STMicroelectronics.html website where I have to find how many hyperlinks are there.

Website- https://www.st.com/en/motor-drivers.html

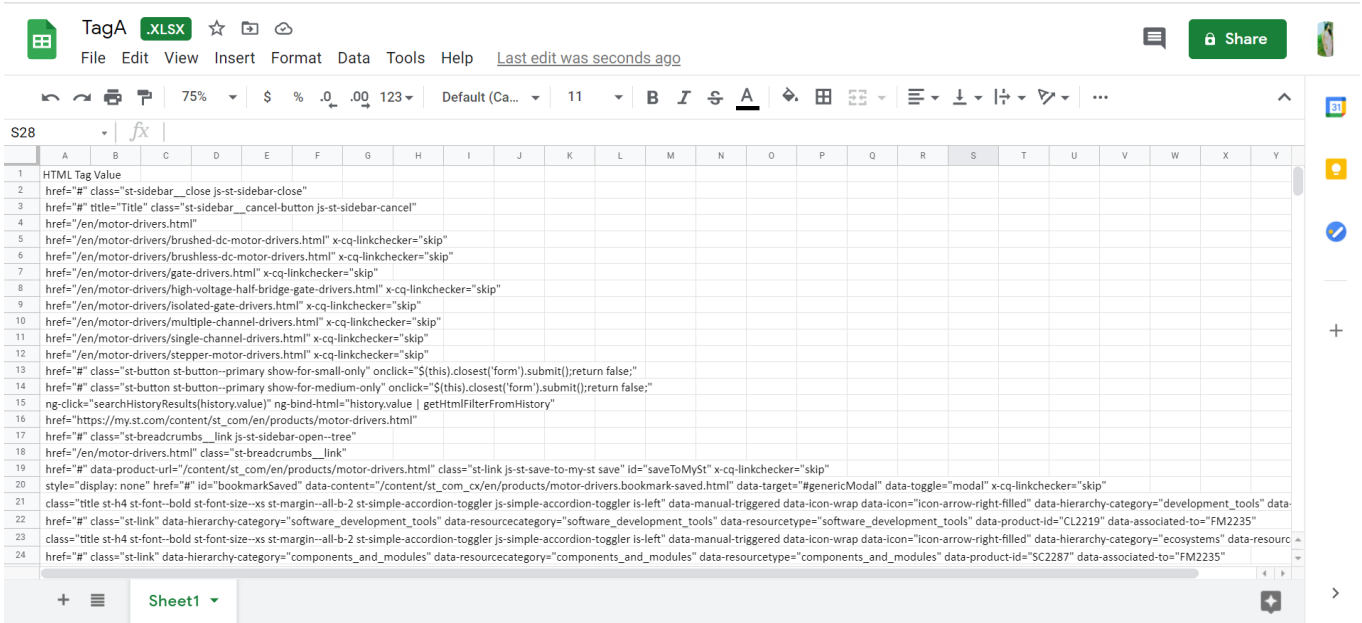


(Motor Drivers - STMicroelectronics.html file)

MATLAB file – motordriver.m

```
clear all;
clc;
text = fileread('C:\Users\Training\Desktop\99003563\MBD
Training\Motor Drivers - STMicroelectronics.html');
Lines = strsplit(text,newline);
k=1;
for i=1:length(Lines)
    if contains(Lines{i},"<a")
        newStr = extractBetween(Lines{i},"<a",">");
        for j=1:length(newStr)
            ValueStorage{k}=newStr{j};
            k=k+1;
        end
    end
end
ValueStorage=vertcat("HTML Tag Value",ValueStorage');
ValueStorage_XLS= cellstr(ValueStorage);
xlswrite("TagA.xlsx",ValueStorage_XLS);
```

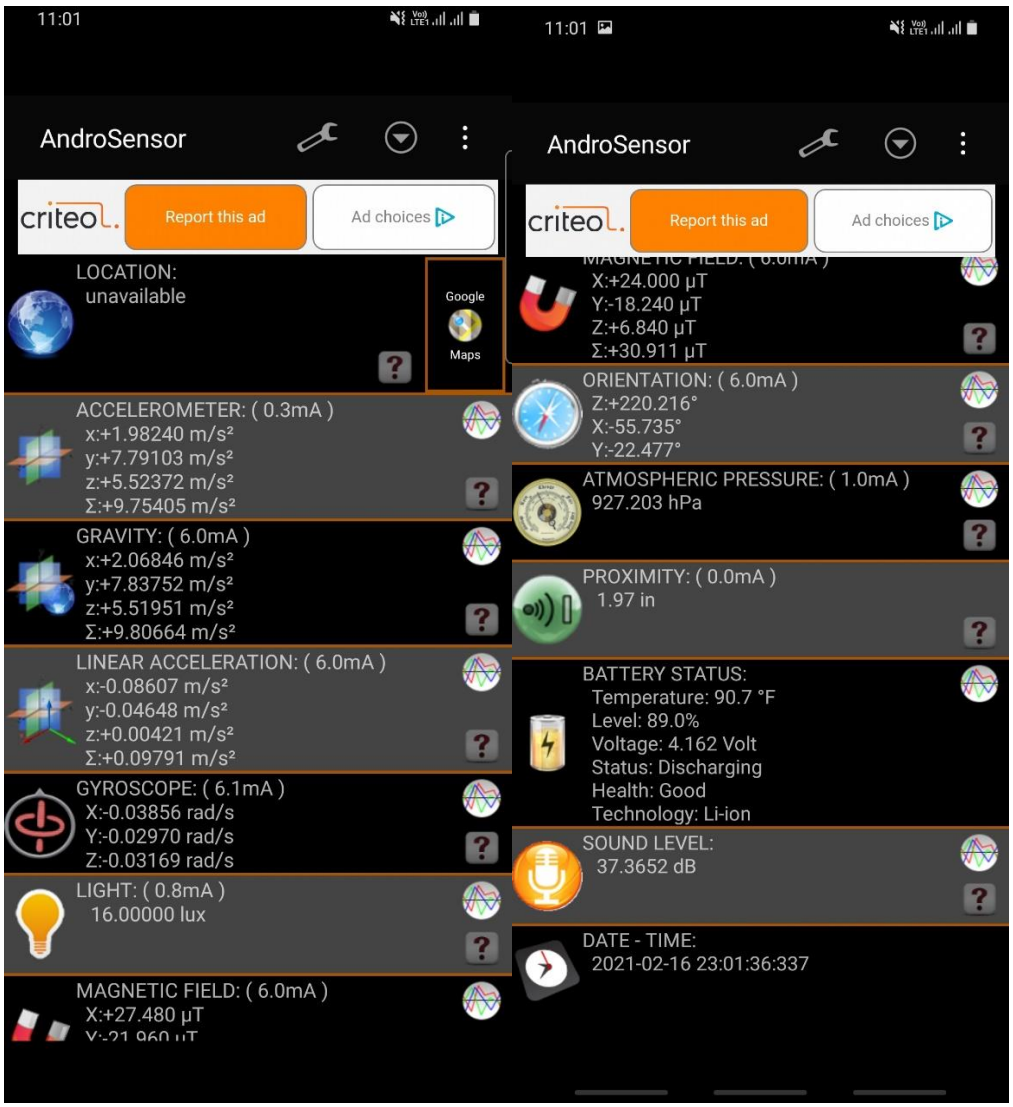
After run there if **TagA.xlsx** file generation in which how much hyperlinks are used, which are they with href. Sample of TagA.xlsx is shown below



ACTIVITY 2 – ALGORITHM DEVELOPMENT

(File Algorithum_devlopment.m)

Developing algorithm of Accelerometer (No of steps) by using AndroSensor application. In AndroSensor there are several features shown below, this Algorithm development is useful for developing Smart Watch, or controlling Light intensity, Detecting Product, Measuring heart rate, etc.



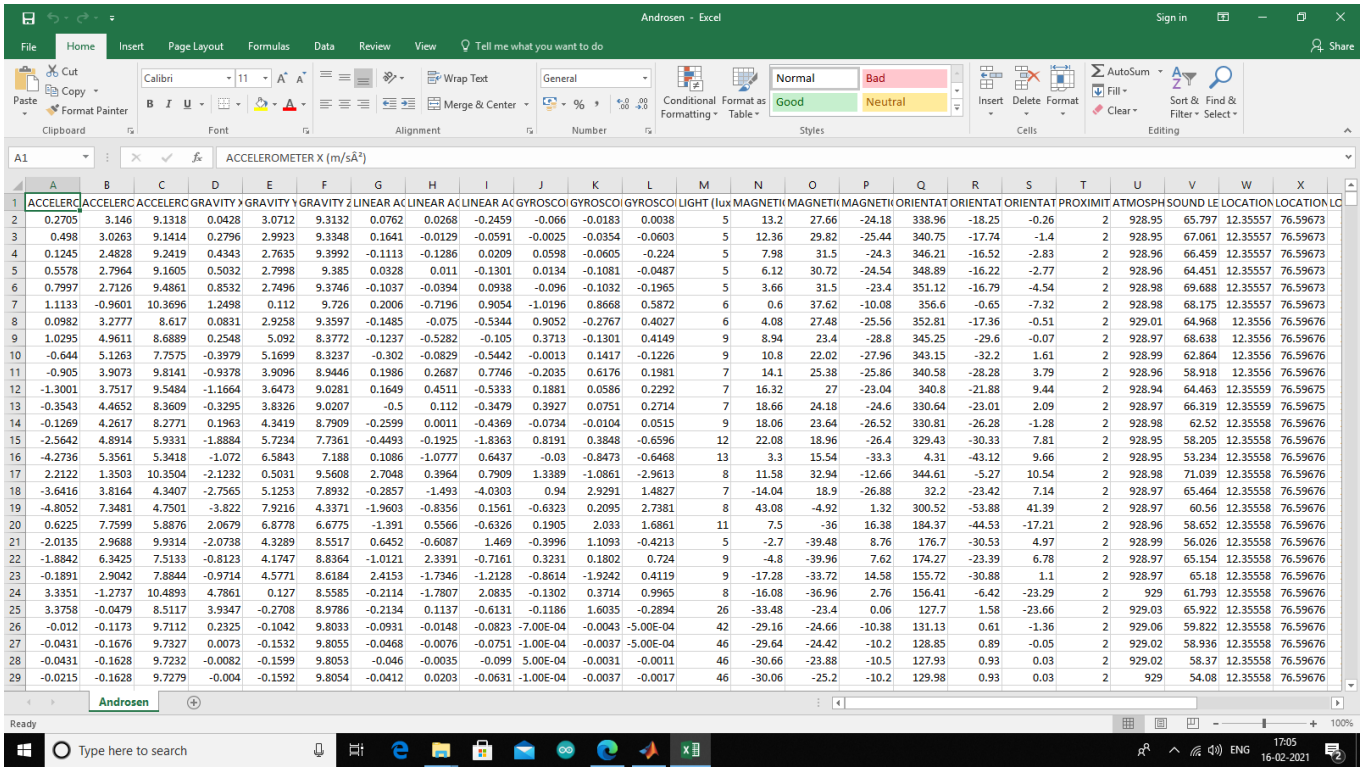
For finding **Number of steps** I have taken only accelerometers respect to Date and Time Parameters to develop algorithm. Required parameters are in Androsen.csv (page 9)

MATLAB Algorithm – andro.m

```
%% Import data from spreadsheet
% Script for importing data from the following spreadsheet:
%
%    Workbook: E:\LTTS\Matlab Intermediate\step_data.xlsx
%    Worksheet: in
%
% To extend the code for use with different selected data or a different
% spreadsheet, generate a function instead of a script.

%% Import the data
[raw0_0] = xlsread('C:\Users\Training\Desktop\99003563\MBD
Training\Task2Matlab\Androsen.csv','A2:C1389');
[raw0_1] = xlsread("C:\Users\Training\Desktop\99003563\MBD
Training\Task2Matlab\Androsen.csv", 'AF2:AF1389');
raw = [raw0_0,raw0_1];

%% Create output variable
data = raw;

%% Create table
stepdata = table;

%% Allocate imported array to column variable names
stepdata.ACCELEROMETERXms = data(:,1);
stepdata.ACCELEROMETERYms = data(:,2);
stepdata.ACCELEROMETERZms = data(:,3);
stepdata.Timesincestartinms = data(:,4);

%% Clear temporary variables
clearvars data raw raw0_0 raw0_1 R;
% Steps_acceleration
% Counts Number of Steps from Acceleration Data
ax=stepdata.ACCELEROMETERXms;
ay=stepdata.ACCELEROMETERYms;
az=stepdata.ACCELEROMETERZms;
t=stepdata.Timesincestartinms;
% Changes in Acceleration Sensors will indicate steps
disp('Walk Around')
mag = sqrt(sum(ax.^2 + ay.^2 + az.^2, 2));
disp(mag);
% Plot magnitude
subplot(3,1,1);
stem(t, mag);
xlabel('Time (s)');
ylabel('Acceleration (m/s^2)');
```

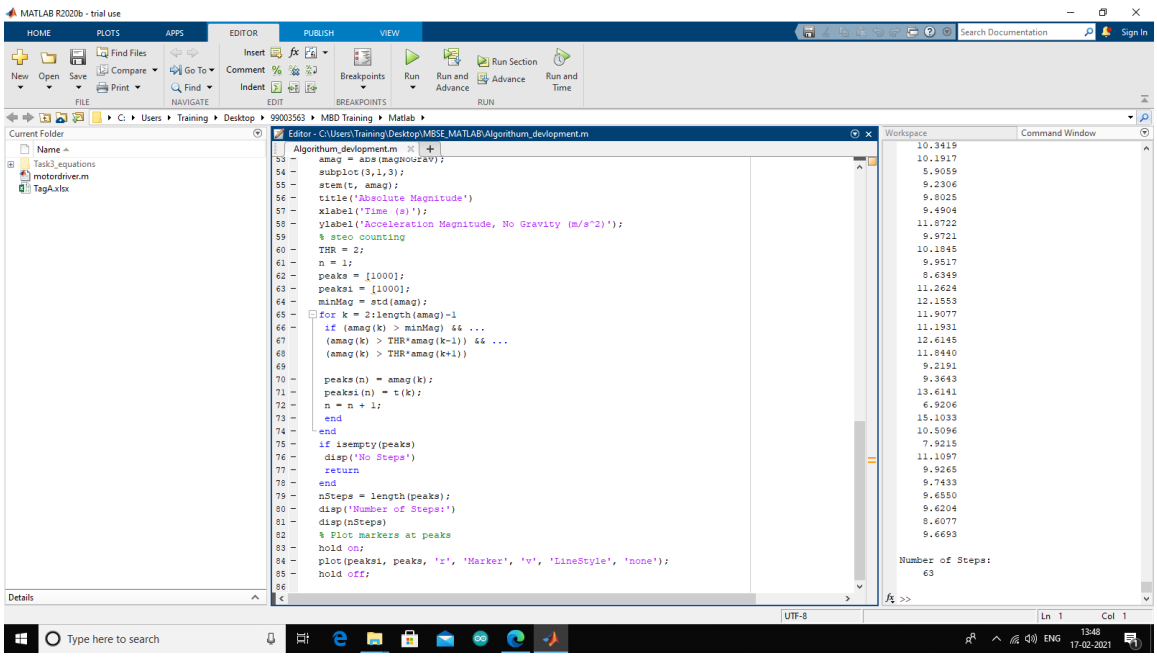
```
% Remove effects of gravitity
magNoGrav = mag - mean(mag);
subplot(3,1,2);
stem(t, magNoGrav);
xlabel('Time (s)');
ylabel('Acceleration (m/s^2)');
title('No Gravity')
% Absolute magnitude
amag = abs(magNoGrav);
subplot(3,1,3);
stem(t, amag);
title('Absolute Magnitude')
xlabel('Time (s)');
ylabel('Acceleration Magnitude, No Gravity (m/s^2)');
% steo counting
THR = 2;
n = 1;
peaks = [1000];
peaksi = [1000];
minMag = std(amag);
for k = 2:length(amag)-1
 if (amag(k) > minMag) && ...
 (amag(k) > THR*amag(k-1)) && ...
 (amag(k) > THR*amag(k+1))

 peaks(n) = amag(k);
 peaksi(n) = t(k);
 n = n + 1;
 end
end
if isempty(peaks)
 disp('No Steps')
 return
end
nSteps = length(peaks);
disp('Number of Steps:')
disp(nSteps)
% Plot markers at peaks
hold on;
plot(peaksi, peaks, 'r', 'Marker', 'v', 'LineStyle', 'none');
hold off;
```

Androsen.csv



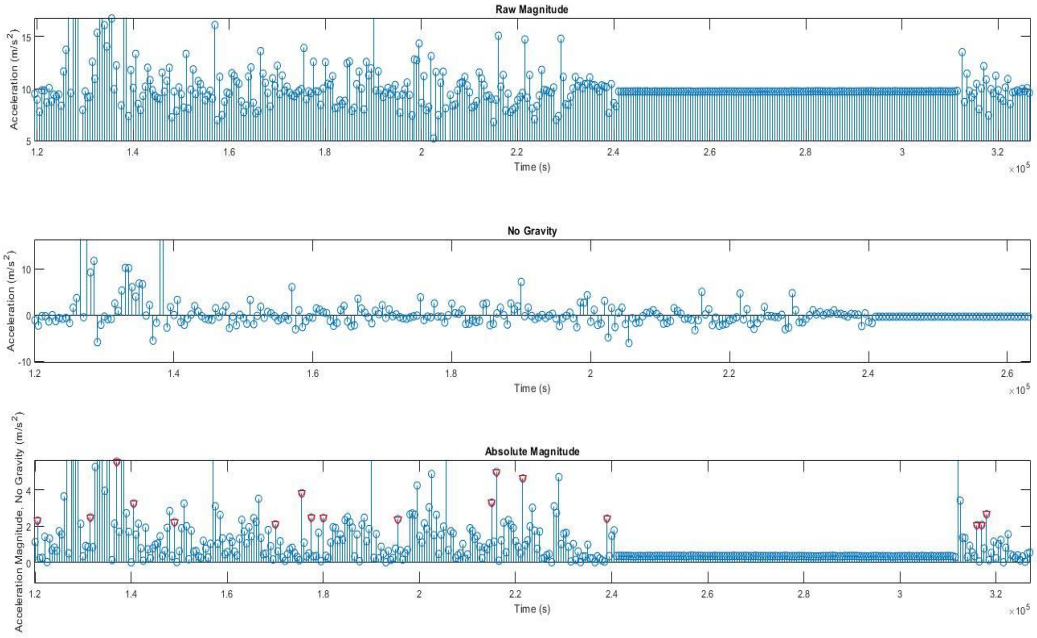
	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X
1	ACCELERO	ACCELERO	ACCELERO	GRAVITY X	GRAVITY Y	GRAVITY Z	LINEAR AC	LINEAR AC	LINEAR AC	GYROSCO	GYROSCO	GYROSCO	LIGHT (lux	MAGNETI	MAGNETI	MAGNETI	ORIENTAT	ORIENTAT	ORIENTAT	PROXIMIT	ATMOSPH	SOUND LE	LOCATION	LOCATION
2	0.2705	3.146	9.1318	0.0428	3.0712	9.3132	0.0762	0.0268	-0.2459	-0.066	-0.0183	0.0038	5	13.2	27.66	-24.18	338.96	-18.25	-0.26	2	928.95	65.797	12.35557	76.59673
3	0.498	3.0263	9.1414	0.2796	2.9923	9.3348	0.1641	-0.0129	-0.0591	-0.0025	-0.0354	-0.0603	5	12.36	29.82	-25.44	340.75	-17.74	-1.4	2	928.95	67.061	12.35557	76.59673
4	0.1245	2.4828	9.2419	0.4343	2.7635	9.3992	-0.1113	-0.1286	0.0209	0.0598	-0.0605	-0.224	5	7.98	31.5	-24.3	346.21	-16.52	-2.83	2	928.96	66.459	12.35557	76.59673
5	0.5578	2.7964	9.1605	0.5032	2.7998	9.385	0.0328	0.011	-0.1301	0.0134	-0.1081	-0.0487	5	6.12	30.72	-24.54	348.89	-16.22	-2.77	2	928.96	64.451	12.35557	76.59673
6	0.7997	2.7126	9.4861	0.8532	2.7496	9.3746	-0.1037	-0.0394	0.0938	-0.096	-0.1032	-0.1965	5	3.66	31.5	-23.4	351.12	-16.79	-4.54	2	928.98	69.688	12.35557	76.59673
7	1.1133	-0.9601	10.3696	1.2498	0.112	9.726	0.2006	-0.7196	0.9054	-1.0196	0.8668	0.5872	6	0.6	37.62	-10.08	356.6	-0.65	-7.32	2	928.98	68.175	12.35557	76.59673
8	0.0982	3.2777	8.617	0.0831	2.9258	9.3597	-0.1485	-0.075	-0.5344	0.9052	-0.2767	0.4027	6	4.08	27.48	-25.56	352.81	-17.36	-0.51	2	929.01	64.968	12.3556	76.59676
9	1.0295	4.9611	8.6889	0.2548	5.092	8.3772	-0.1237	-0.5282	-0.105	0.3713	-0.1301	0.4149	9	8.94	23.4	-28.8	345.25	-29.6	-0.07	2	928.97	68.638	12.3556	76.59676
10	-0.644	5.1263	7.7575	-0.3979	5.1699	8.3237	-0.302	-0.0829	-0.5442	-0.0013	0.1417	-0.1226	9	10.8	22.02	-27.96	343.15	-32.2	1.61	2	928.99	62.864	12.3556	76.59676
11	-0.905	3.9073	9.8141	-0.9378	3.9096	8.9446	0.1986	0.2687	0.7746	-0.2035	0.6176	0.1981	7	14.1	25.38	-25.86	340.58	-28.28	3.79	2	928.96	58.918	12.3556	76.59676
12	-1.3001	3.7517	9.5484	-1.1664	3.6473	9.0281	0.1649	0.4511	-0.5333	0.1881	0.0586	0.2292	7	16.32	27	-23.04	340.8	-21.88	9.44	2	928.94	64.463	12.35559	76.59675
13	-0.3543	4.4652	8.3609	-0.3295	3.8326	9.0207	-0.5	0.112	-0.3479	0.3927	0.0751	0.2714	7	18.66	24.18	-24.6	330.64	-23.01	2.09	2	928.97	66.319	12.35559	76.59675
14	-0.1269	4.2617	8.2771	0.1963	4.3419	8.7909	-0.2599	0.0011	-0.4369	-0.0734	-0.0104	0.0515	9	18.06	23.64	-26.52	330.81	-26.28	-1.28	2	928.98	62.52	12.35558	76.59676
15	-2.5642	4.8914	5.9331	-1.8884	5.7234	7.7361	-0.4493	-0.1925	-1.8363	0.8191	0.3848	-0.6596	12	22.08	18.96	-26.4	329.43	-30.33	7.81	2	928.95	58.205	12.35558	76.59676
16	-4.2736	5.3561	5.3418	-1.072	6.5843	7.188	0.1086	-1.0777	0.6437	-0.03	-0.8473	-0.6468	13	3.3	15.54	-33.3	4.31	-43.12	9.66	2	928.95	53.234	12.35558	76.59676
17	2.2122	1.3503	10.3504	-2.1232	0.5031	9.5608	2.7048	0.3964	0.7909	1.3389	-1.0861	-2.9613	8	11.58	32.94	-12.66	344.61	-5.27	10.54	2	928.98	71.039	12.35558	76.59676
18	-3.6416	3.8164	4.3407	-2.7565	5.1253	7.8932	-0.2857	-1.493	-4.0303	0.94	2.9291	1.4827	7	-14.04	18.9	-26.88	32.2	-23.42	7.14	2	928.97	65.464	12.35558	76.59676
19	-4.8052	7.3481	4.7501	-3.822	7.9216	4.3371	-1.9603	-0.8356	0.1561	-0.6323	0.2095	2.7381	8	43.08	-4.92	1.32	300.52	-53.88	41.39	2	928.97	60.56	12.35558	76.59676
20	0.6225	7.7599	5.8876	2.0679	6.8778	6.6775	-1.391	0.5566	-0.6326	0.1905	2.033	1.6861	11	7.5	-36	16.38	184.37	-44.53	-17.21	2	928.96	58.652	12.35558	76.59676
21	-2.0135	2.9688	9.9314	-2.0738	4.3289	8.5517	0.6452	-0.6087	1.469	-0.3996	1.1093	-0.4213	5	-2.7	-39.48	8.76	176.7	-30.53	4.97	2	928.99	56.026	12.35558	76.59676
22	-1.8842	6.3425	7.5133	-0.8123	4.1747	8.8364	-1.0121	2.3391	-0.7161	0.3231	0.1802	0.724	9	-4.8	-39.96	7.62	174.27	-23.39	6.78	2	928.97	65.154	12.35558	76.59676
23	-0.1891	2.9042	7.8844	-0.9714	4.5771	8.6184	2.4153	-1.7346	-1.2128	-0.8614	-1.9242	0.4119	9	-17.28	-33.72	14.58	155.72	-30.88	1.1	2	928.97	65.18	12.35558	76.59676
24	3.3351	-1.2737	10.4893	4.7861	0.127	8.5585	-0.2114	-1.7807	2.0835	-0.1302	0.3714	0.9965	8	-16.08	-36.96	2.76	156.41	-6.42	-23.29	2	929	61.793	12.35558	76.59676
25	3.3758	-0.0479	8.5117	3.9347	-0.2708	8.9786	-0.2134	0.1137	-0.6131	-0.1186	1.6035	-0.2894	26	-33.48	-23.4	0.06	127.7	1.58	-23.66	2	929.03	65.922	12.35558	76.59676
26	-0.012	-0.1173	9.7112	0.2325	-0.1042	9.8033	-0.0931	-0.0148	-0.0823	-7.00E-04	-0.0043	-5.00E-04	42	-29.16	-24.66	-10.38	131.13	0.61	-1.36	2	929.06	59.822	12.35558	76.59676
27	-0.0431	-0.1676	9.7327	0.0073	-0.1532	9.8055	-0.0468	-0.0076	-0.0751	-1.00E-04	-0.0037	-5.00E-04	46	-29.64	-24.42	-10.2	128.85	0.89	-0.05	2	929.02	58.936	12.35558	76.59676
28	-0.0431	-0.1628	9.7232	-0.0082	-0.1599	9.8053	-0.046	-0.0035	-0.099	5.00E-04	-0.0031	-0.0011	46	-30.66	-23.88	-10.5	127.93	0.93	0.03	2	929.02	58.37	12.35558	76.59676
29	-0.0215	-0.1628	9.7279	-0.004	-0.1592	9.8054	-0.0412	0.0203	-0.0631	-1.00E-04	-0.0037	-0.0017	46	-30.06	-25.2	-10.2	129.98	0.93	0.03	2	929	54.08	12.35558	76.59676

When we give run command it displays output in command window i.e.

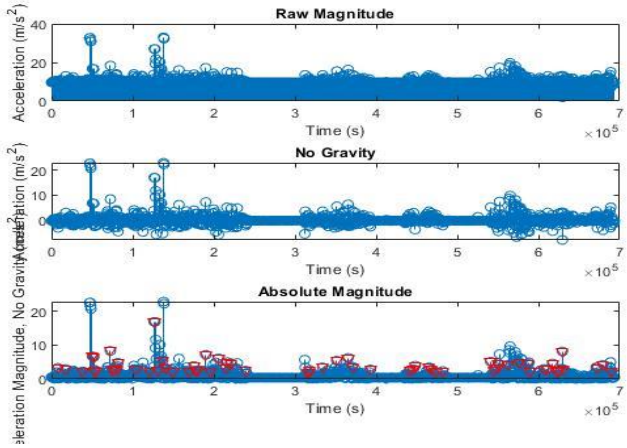


```
Algorithm_devlopment.m
    amag = abs(magNoGrav);
    subplot(3,1,3);
    stem(t, amag);
    title('Absolute Magnitude')
    xlabel('Time (s)');
    ylabel('Acceleration Magnitude, No Gravity (m/s^2)');
    % steo counting
    THR = 2;
    n = 1;
    peaks = [1000];
    peaksi = [1000];
    minMag = std(amag);
    for k = 2:length(amag)-1
     if (amag(k) > minMag) && ...
     (amag(k) > THR*amag(k-1)) && ...
     (amag(k) > THR*amag(k+1))

     peaks(n) = amag(k);
     peaksi(n) = t(k);
     n = n + 1;
     end
    end
    if isempty(peaks)
     disp('No Steps')
     return
    end
    nSteps = length(peaks);
    disp('Number of Steps:')
    disp(nSteps)
    % Plot markers at peaks
    hold on;
    plot(peaksi, peaks, 'r', 'Marker', 'v', 'LineStyle', 'none');
    hold off;
```

```
    10.3419
    10.1917
     5.9059
     9.2306
     9.8025
     9.4904
    11.8722
     9.9721
    10.1845
     9.9517
     8.6349
    11.2624
    12.1553
    11.9077
    11.1931
    12.6145
    11.8440
     9.2191
     9.3643
    13.6141
     6.9206
    15.1033
    10.5096
     7.9215
    11.1097
     9.9265
     9.7433
     9.6550
     9.6204
     8.6077
     9.6693

Number of Steps:
    63
```



Total no of steps = 63

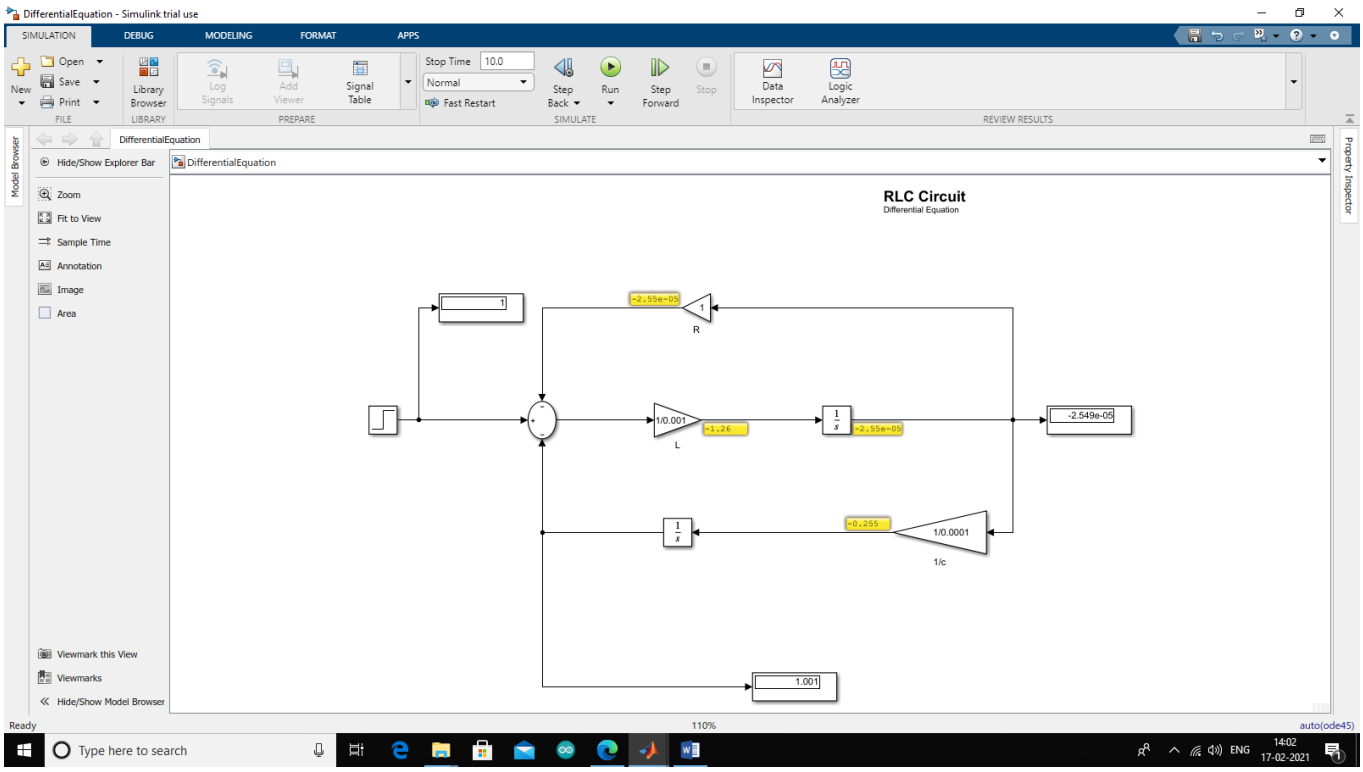


[Steps Followed-

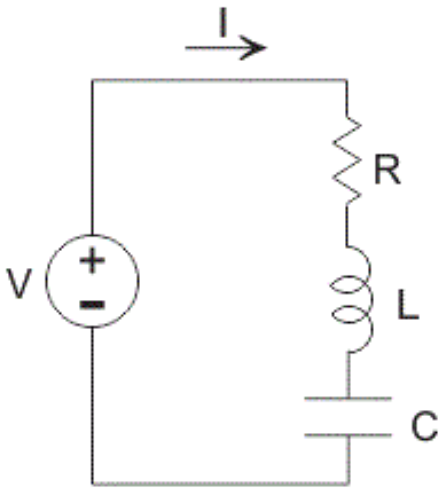
1 Record Data in AndroSensor Save file in Excel form
2 Import data to MATLAB, Set delimiters, output type, Variable names
3 Editor write Code documentation
4 Run file
5 File generated in specific location which consist of hyperlinks]

ACTIVITY 3 – DIFFERENTIAL EQUATION

(File DifferentialEquation.slx)



RLC Circuit

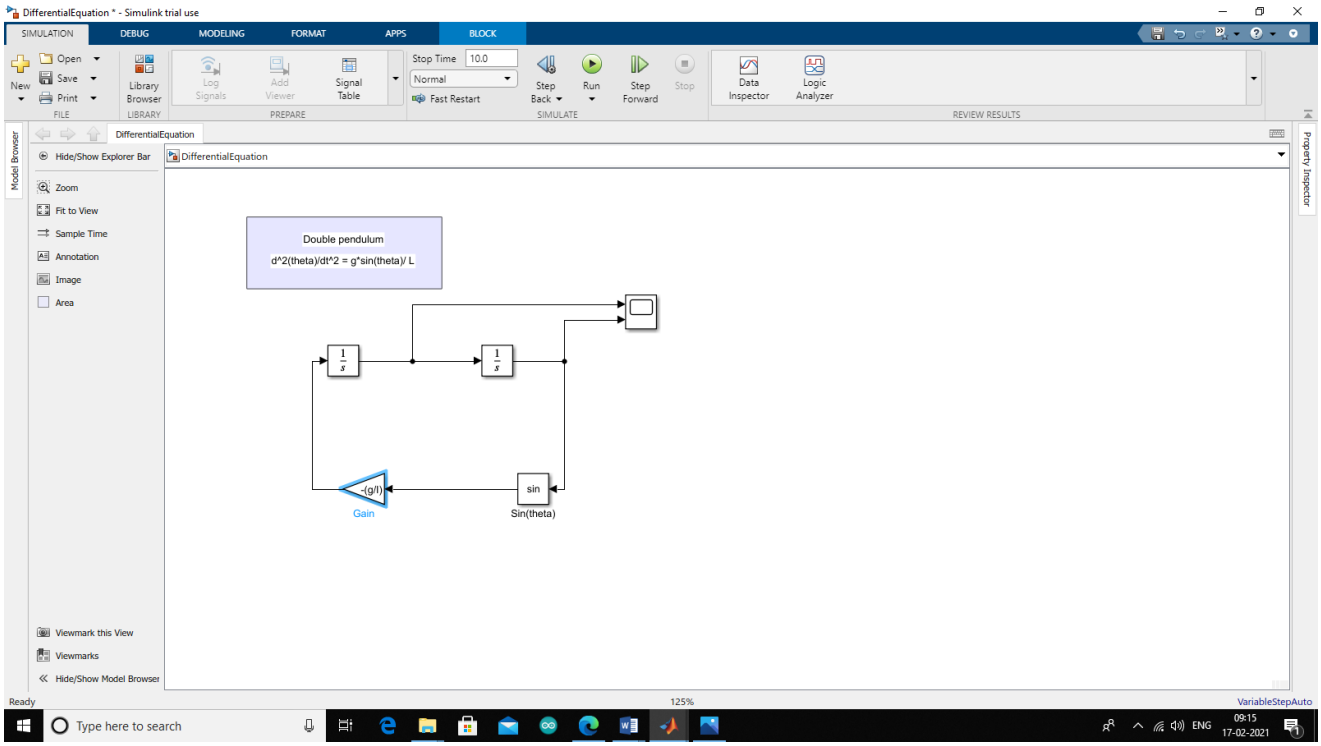


$$L.I'(t) + Q.I(t) + \frac{1}{C}Q(t) = V(t)$$

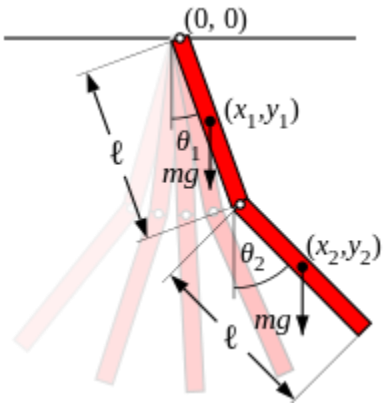
In Mathematics, a differential equation is an equation that contains one or more functions along with its derivatives. The derivatives of function define the rate of change of a function at a point. It is mainly used in fields such physics, engineering, biology and so on. The primary purpose of the differential equation is to study of solutions that satisfy the equations and the properties of the solutions.

Double pendulum Application –

The study of the double pendulum and its application will be of immense benefit to the physics and mathematics department in Universities and other tertiary institutions, as the findings of the study will educate the entire population under the umbrella of the double pendulum, the factors affecting performance of the double pendulum and demonstration of normal modes.



(Double Pendulum System)



$$-mg\sin(\theta)L = mL^2\frac{d^2\theta}{dt^2}$$

$$\downarrow$$

$$-g\sin(\theta) = L\frac{d^2\theta}{dt^2}$$

$$\downarrow$$

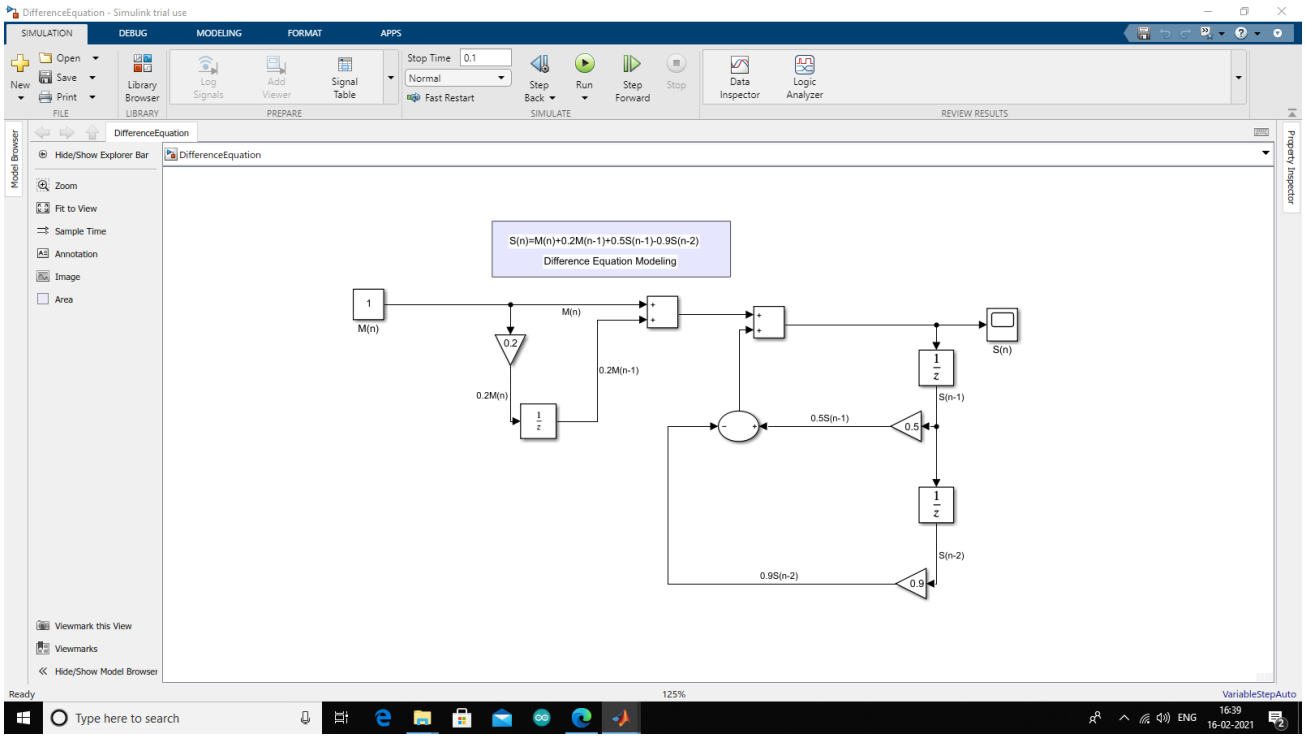
$$\frac{d^2\theta}{dt^2} = -\frac{g\sin(\theta)}{L}$$

The aim of the research work is to examine double pendulum and its application. Other specific objectives of the study are-

1. to provide a quantitative description of the motion of a double pendulum
2. to determine the factors affecting double pendulum
3. to determine the moment of inertia of double pendulum

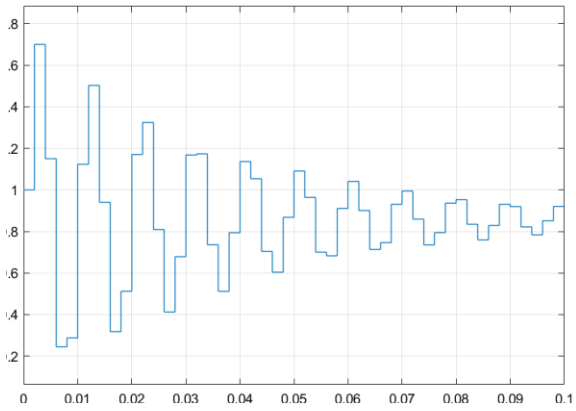
ACTIVITY 4 – DIFFERENCE EQUATION

(File DifferenceEquation.slx)



EQUATION

[S(n) = M(n)+0.2M(n-1) +0.5S(n-1)-0.9S(n-2)]



ACTIVITY 5 – AUTOMOTIVE BODY CONTROL MODEL

(File MBSE_WindowsMIL.slx)

Low Level Requirements:

1 Window buttons should not be operable when master control is off.
2 When the window button is pressed the window should go down as long as the window button is held pressed.
3 When the window button is lifted the window should go up as long as the window button is held lifted.
4 Windows should not move when there is no input given to window buttons.

Research

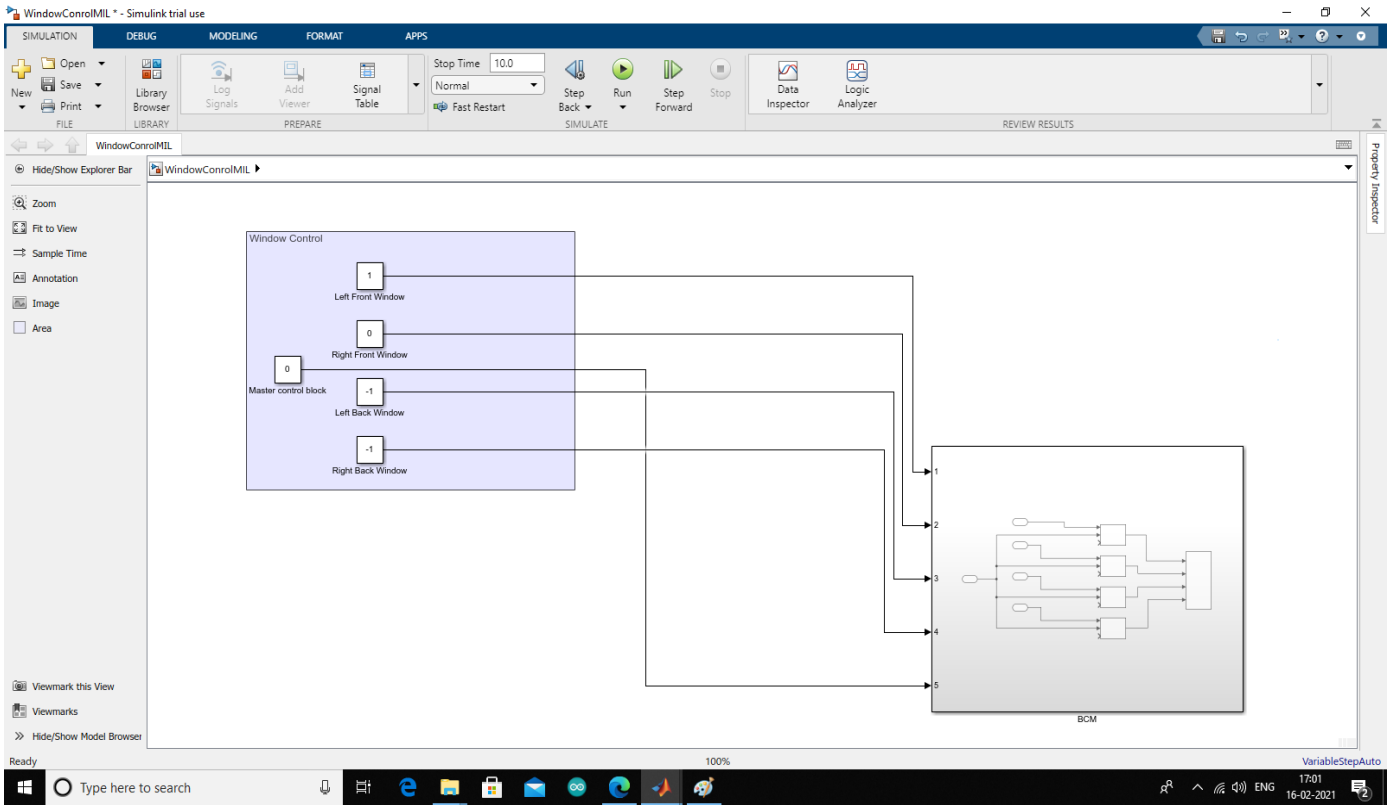
Power windows have become so common that by 2008, some automakers eliminated hand crank windows from all their models. So many vehicles now have power windows that some people no longer understand the (formerly) common sign from another driver of using their hand to simulate moving a window crank to indicate that they wish to speak with someone when stopped at a light or in a parking lot. The 2008 Audi RS4 sold in Europe, however, still has roll-up windows for the rear doors although its counterpart sold in the U.S. has power windows for all doors.
All power windows can be operated using the control panel for the driver's door - the control panels for the other doors can only each operate their respective power window. Only one control panel can be operated at a time.

Test plan

SL.NO	TEST ID	DESCRIPTION	Expected input	Expected output	Actual output
1.	TC1	When the master control is OFF windows should not move.	master control: 0	Windows don't move irrespective of input	Windows don't move irrespective of input
2.	TC2	When the master control is ON windows should be able to move when the button is lifted	master control: 1 Window input: -1	Window goes up	Window goes up

3.	TC3	When the master control is ON windows should be able to move when the button is pressed	master control: 1 Window input: 1	Windows go down	Windows go down
4.	TC4	When the master control is ON windows should be able to move when the button is idle	master control: 1 Window input: 0	Windows remain idle	Windows remain idle
5.	TC5	When there is a obstacle between window and frame restricting its movement	master control: 1 Window input: 1	Window should stop going up	No expected result obtained (window still moving)

WindowsControlMIL



Contents

Model - WindowsControlMIL
System - WindowsControlMIL
System - WindowsControlMIL/BCM
System - WindowsControlMIL/BCM/Windows
System - WindowsControlMIL/BCM/Windows/Left Back
System - WindowsControlMIL/BCM/Windows/Left Front
System - WindowsControlMIL/BCM/Windows/Right Back
System - WindowsControlMIL/BCM/Windows/Right Front
Appendix

List of Tables

1. Constant Block Properties
2. Inport Block Properties
3. Switch Block Properties
4. Inport Block Properties
5. Inport Block Properties
6. Sigbuilder Block Properties
7. Switch Block Properties
8. Block Type Count

Model - WindowsControlMIL

Full Model Hierarchy

1. WindowsControlMIL
    1. BCM
        1. Windows
            1. Left Back
            2. Left Front
            3. Right Back
            4. Right Front

Simulation Parameter	Value
Solver	VariableStepAuto
RelTol	1e-3
Refine	1
MaxOrder	5
ZeroCross	on

System – WindowsControlMIL

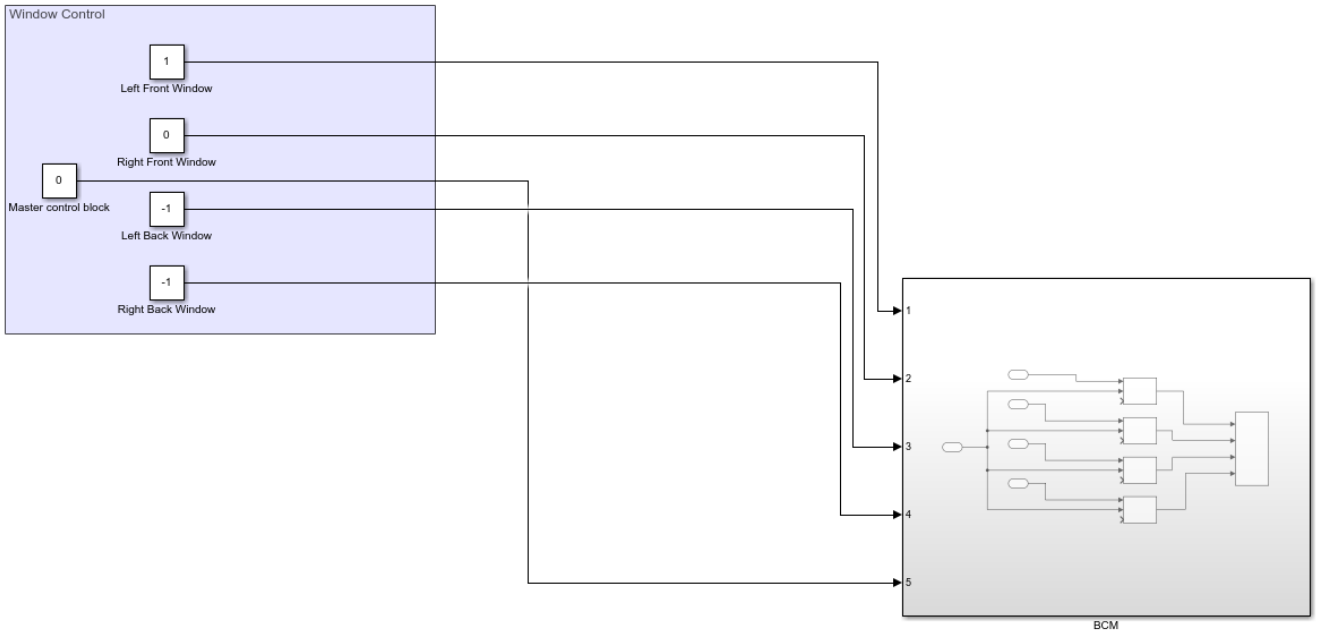


Table 1. Constant Block Properties

Name	Value	Out Data Type Str	Lock Scale	Sample Time	Frame Period
Left Back Window	-1	Inherit: Inherit from 'Constant value'	off	inf	inf
Left Front Window	1	Inherit: Inherit from 'Constant value'	off	inf	inf
MasterControl	0	Inherit: Inherit from 'Constant value'	off	inf	inf
Right Back Window	-1	Inherit: Inherit from 'Constant value'	off	inf	inf
Right Front Window	0	Inherit: Inherit from 'Constant value'	off	inf	inf

WindowsControlMIL/BCM

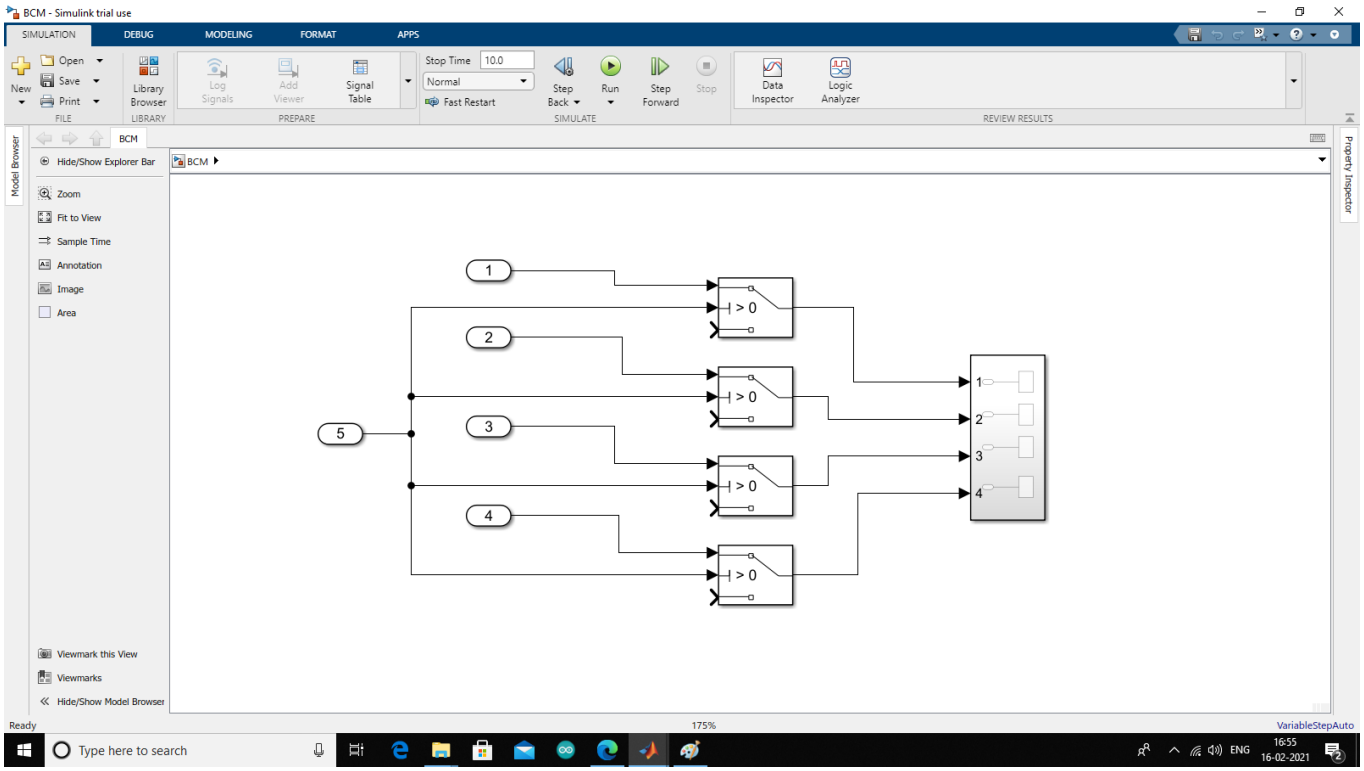


Table 2. Inport Block Properties

Name	Port	Defined In Blk
In1	1	Left Front Window
In2	2	Right Front Window
In3	3	Left Back Window
In4	4	Right Back Window
Input	5	MasterControl

Table 3. Switch Block Properties

Name	Criteria	Threshold	Input Same DT	Out Data Type Str	Lock Scale	Rnd Meth	Saturate On Integer Overflow	Zero Cross	Allow Diff Input Sizes
Switch	u2 > Threshold	0	off	Inherit: Inherit via internal rule	off	Floor	off	on	off
Switch1	u2 > Threshold	0	off	Inherit: Inherit via internal rule	off	Floor	off	on	off
Switch2	u2 > Threshold	0	off	Inherit: Inherit via internal rule	off	Floor	off	on	off
Switch3	u2 > Threshold	0	off	Inherit: Inherit via internal rule	off	Floor	off	on	off

WindowsControlMIL/BCM/Windows

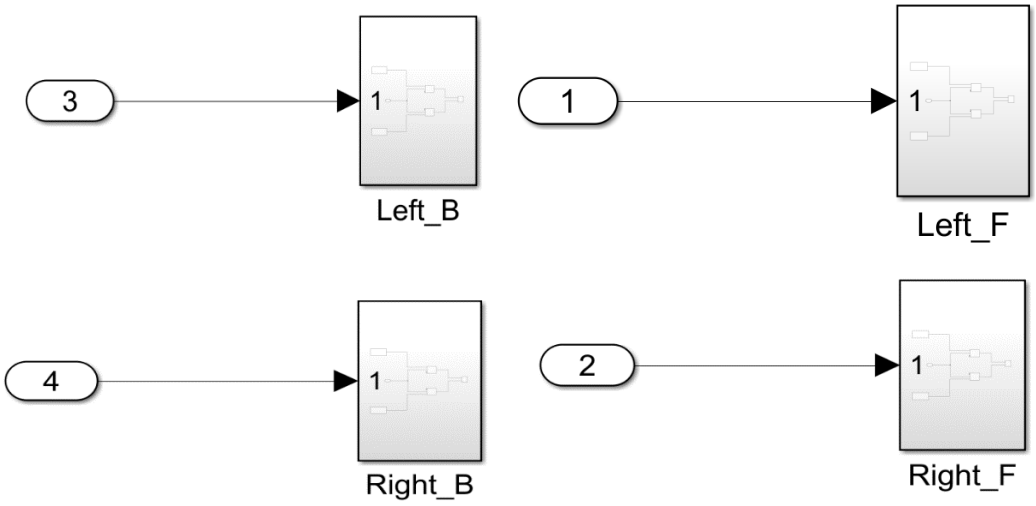


Table 4. Inport Block Properties

Name	Port	Defined In Blk
In1	1	Switch
In3	2	Switch1
In5	3	Switch3
In7	4	Switch2

WindowsControlMIL/BCM/Windows/LeftBack||RightBack||LeftFront||RightFront

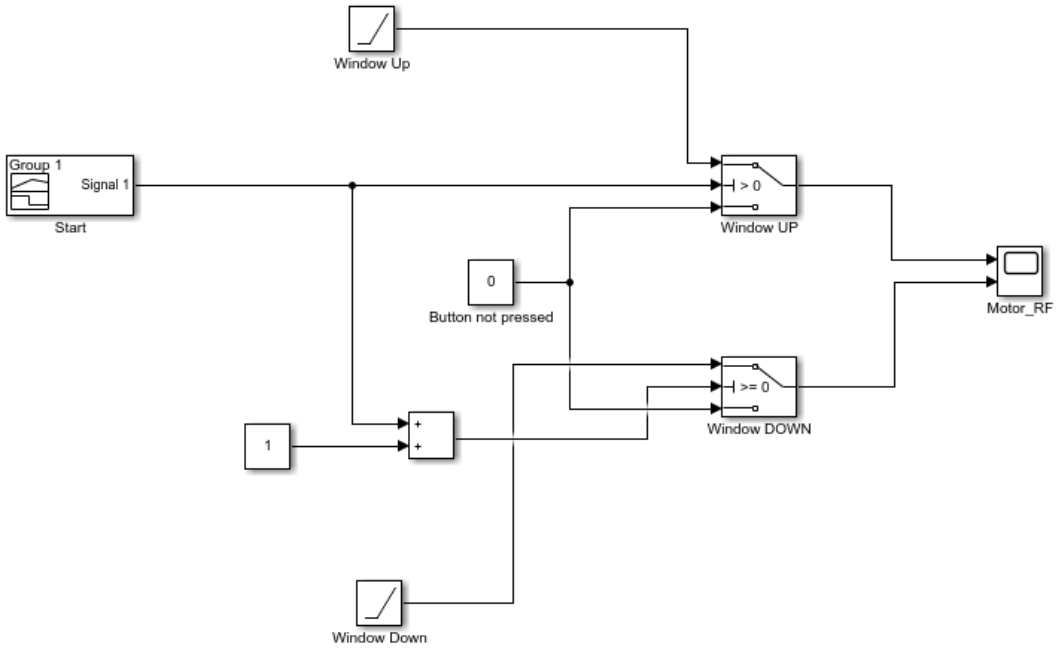


Table 5. Inport Block Properties

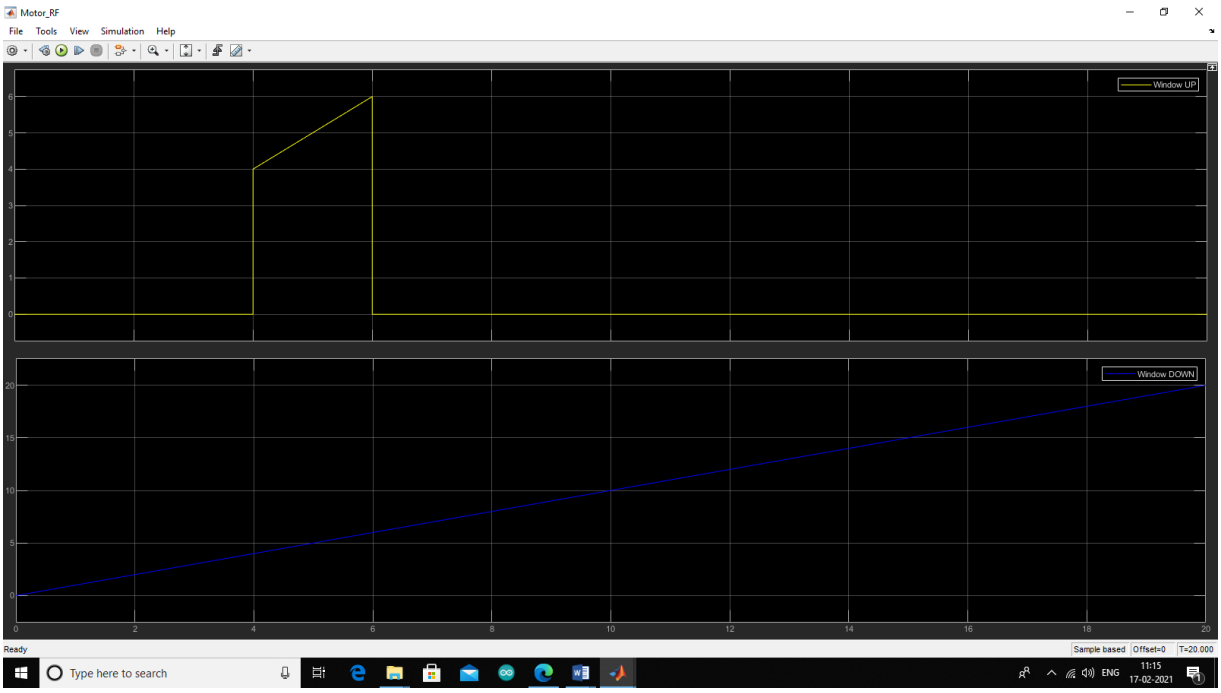
Name	Port	Defined In Blk
Ramp(WindowUp)	1	Switch(WindowUP)
Ramp(WindowDown)	1	Switch1(WindowDOWN)

Table 6. Sigbuilder Block Properties

Name
Signal Builder – When Automotive Starts Enabled

Table 7. Switch Block Properties

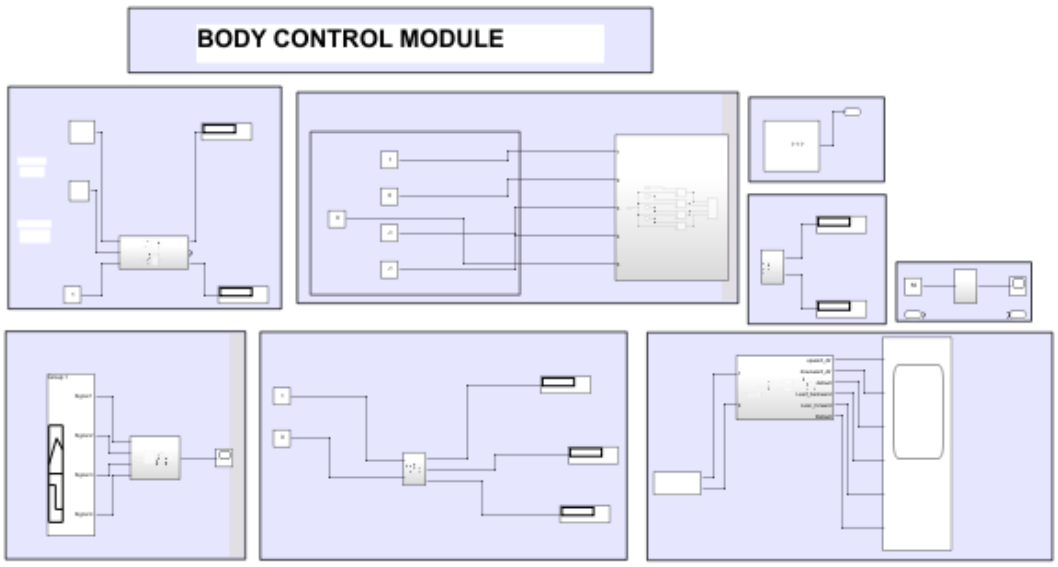
Name	Criteria	Threshold	Input Same DT	Out Data Type Str	Lock Scale	Rnd Meth	Saturate On Integer Overflow	Zero Cross	Allow Diff Input Sizes
Switch	u2 > Threshold	0	off	Inherit: Inherit via internal rule	off	Floor	off	on	off
Switch1	u2 >= Threshold	0	off	Inherit: Inherit via internal rule	off	Floor	off	on	off



Appendix Table 8. Block Type Count

Block Type	Count	Block Names
Inport	13	In1, In2, In3, In4, Input, In1, In3, In5, In7, In1, In1, In1, In1
Switch	12	Switch, Switch1, Switch2, Switch3, Switch, Switch1, Switch, Switch1, Switch, Switch1, Switch, Switch1
Sigbuildr block(m)	4	Signal Builder, Signal Builder1, Signal Builder, Signal Builder1
Subsystem	6	BCM, Windows, Left Back, Left Front, Right Back, Right Front
Constant	8	Left Back Window, Left Front Window, Right Back Window, Right Front Window – Down Action with value 1 Left Back Window, Left Front Window, Right Back Window, Right Front Window- No Button is pressed
Scope	4	Motor_RF, Motor_RB, Motor_LB, Motor_LF
Ramp Signal	8	Upward & Downward Signal Left Back Window, Left Front Window, Right Back Window, Right Front Window

TEAM ACTIVITY



CERTIFICATES

ACTIVITY 6 – ONRAMPS

MATLAB Onramp Certificate

Simulink Onramp Certificate

MathWorks | Training Services

Course Completion Certificate

Saloni Adanna

has successfully completed 100% of the self-paced training course

Stateflow Onramp

DIRECTOR, TRAINING SERVICES

16 February 2021

State flow Onramp Certificate

Summary:

1. My Contributions:

Assigned with total Six tasks.

Task 1 –

Automate script of STMicroelectronics.html and I have to find how much hyperlinks are there.

Task 2 –

Algorithm Development by using AndroSensor app. Accelerometer counts parameters i.e. Counting No of steps.

Task 3 and 4–

Simulate Different Equation and its Applications.

Task 5-

Project of Automotive Body coding in which Power Window Automation is my major area of working.

2. Challenges faced and how they were overcome:

While working on Project during Simulation of Window, I didn't get any graph. Later, by exchanging signal builder to Ramp there is Output. This happened because of signal builder giving step input to Switch.