EMG INSTRUMENTATION (5 CHANNELS)

POWER SUPPLY
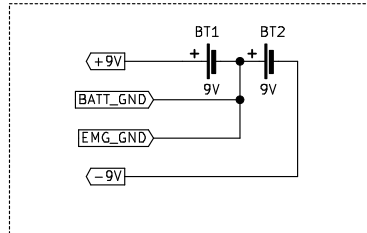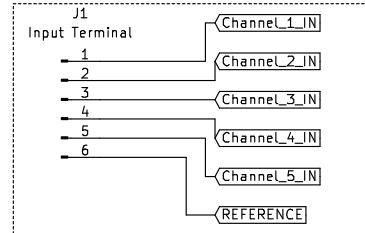
BT1 BT2
+9V
+   +
9V   9V
BATT_GND
EMG_GND
−9V
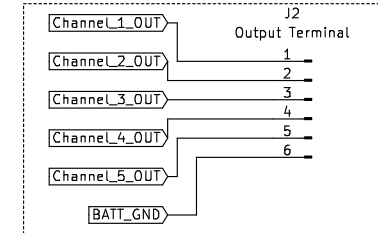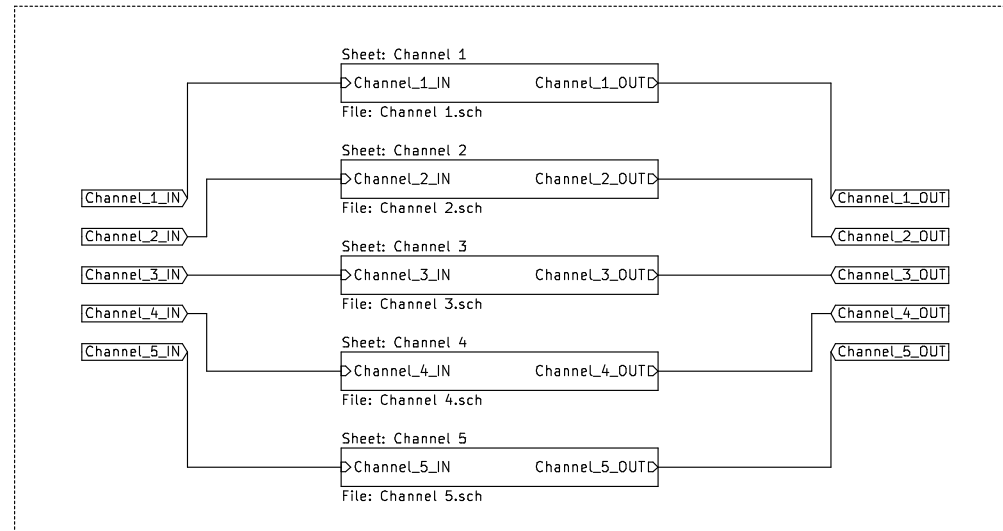
INPUT

J1
Input Terminal
Channel_1_IN
1
Channel_2_IN
2
3
Channel_3_IN
4
5
Channel_4_IN
6
Channel_5_IN
REFERENCE

OUTPUT

Channel_1_OUT
J2
Output Terminal
Channel_2_OUT
1
2
Channel_3_OUT
3
4
Channel_4_OUT
5
6
Channel_5_OUT
BATT_GND

MAIN CIRCUIT

Sheet: Channel 1
Channel_1_IN   Channel_1_OUT
File: Channel 1.sch

Sheet: Channel 2
Channel_2_IN   Channel_2_OUT
File: Channel 2.sch

Sheet: Channel 3
Channel_3_IN   Channel_3_OUT
File: Channel 3.sch

Sheet: Channel 4
Channel_4_IN   Channel_4_OUT
File: Channel 4.sch

Sheet: Channel 5
Channel_5_IN   Channel_5_OUT
File: Channel 5.sch

Channel_1_IN
Channel_2_IN
Channel_3_IN
Channel_4_IN
Channel_5_IN

Channel_1_OUT
Channel_2_OUT
Channel_3_OUT
Channel_4_OUT
Channel_5_OUT

CHANNEL 1

INSTRUMENTATION AMPLIFIER
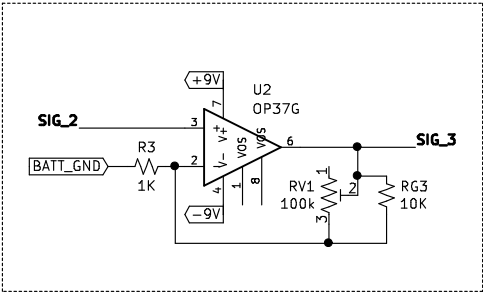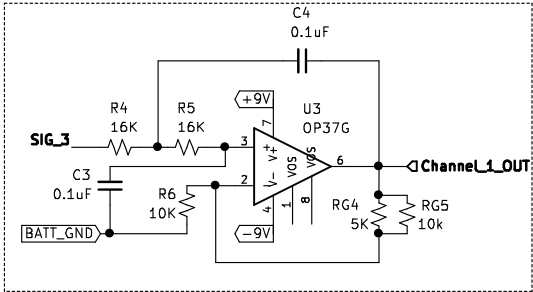
U1
AD620

Channel_1_IN
RG1 100
RG2 100
REFERENCE
+9V
−9V
BATT_GND
SIG_1

HIGH PASS FILTER

SIG_1
C1 0.1uF
C2 0.1uF
SIG_2
R1 1.5M
R2 1.5M
BATT_GND

AMPLIFIER

U2
OP37G

SIG_2
R3 1K
BATT_GND
+9V
−9V
SIG_3
RV1 100k
RG3 10K

LOW PASS FILTER

U3
OP37G

C4 0.1uF
SIG_3
R4 16K
R5 16K
C3 0.1uF
R6 10K
BATT_GND
+9V
−9V
Channel_1_OUT
RG4 5K
RG5 10k

CHANNEL 2

INSTRUMENTATION AMPLIFIER
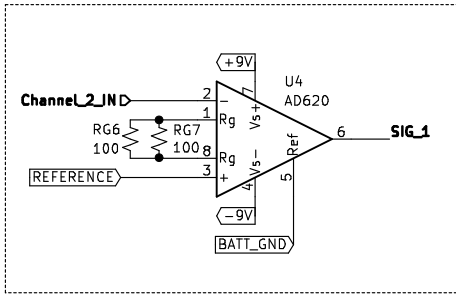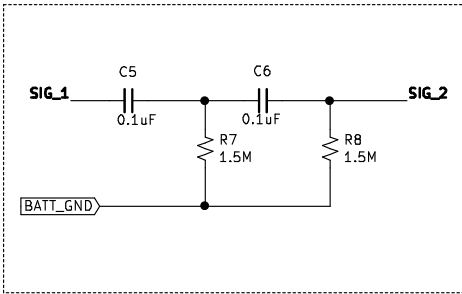
Channel_2_IN

U4
AD620

RG6
100

RG7
100

REFERENCE

+9V

BATT_GND

SIG_1

HIGH PASS FILTER

SIG_1

C5
0.1uF

C6
0.1uF

SIG_2

R7
1.5M

R8
1.5M

BATT_GND

AMPLIFIER

SIG_2

BATT_GND

R9
1K

U5
OP37G

+9V

−9V

SIG_2

RV2
100k

RG8
10K

LOW PASS FILTER

SIG_2

R10
16K

R11
16K

C8
0.1uF

U6
OP37G

+9V

−9V

Channel_2_OUT

C7
0.1uF

R12
10K

RG9
5K

RG10
10k

BATT_GND
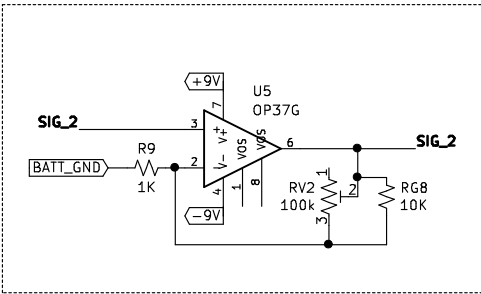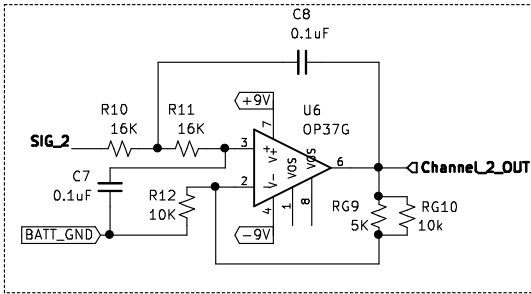
Upendra Subedi
Sanjay Rijal
Rhimesh Lwagun
Rabin Nepal

Sheet: /Channel 2/
File: Channel 2.sch

Title: EMG INSTRUMENTATION

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CHANNEL 3

INSTRUMENTATION AMPLIFIER
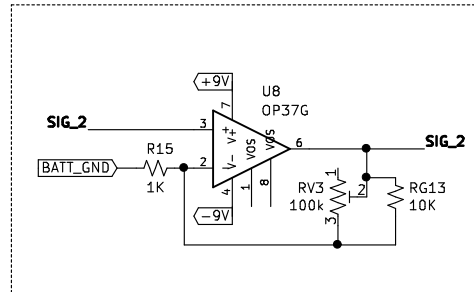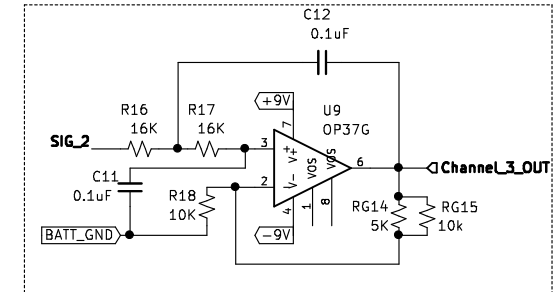
Channel_3_IN

+9V

U7
AD620

RG11
100

RG12
100

REFERENCE

SIG_1

−9V

BATT_GND

HIGH PASS FILTER

SIG_1

C9
0.1uF

C10
0.1uF

SIG_2

R13
1.5M

R14
1.5M

BATT_GND

AMPLIFIER

SIG_2

+9V

U8
OP37G

BATT_GND

R15
1K

SIG_2

RV3
100k

RG13
10K

−9V

LOW PASS FILTER

C12
0.1uF

R16
16K

R17
16K

+9V

U9
OP37G

SIG_2

C11
0.1uF

R18
10K

Channel_3_OUT

RG14
5K

RG15
10k

BATT_GND

−9V

CHANNEL 4

INSTRUMENTATION AMPLIFIER
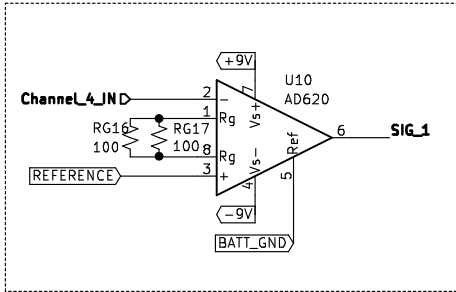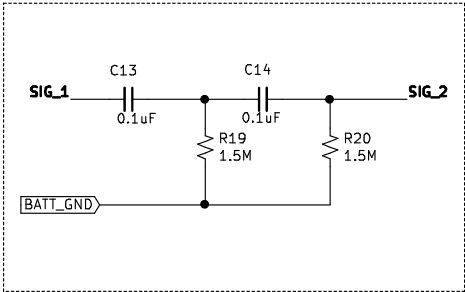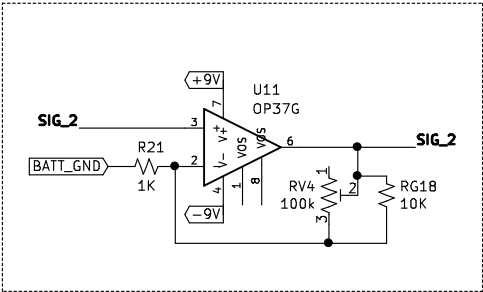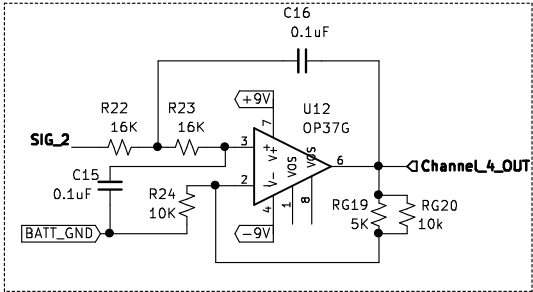
U10
AD620

Channel_4_IN

RG16
100

RG17
100

REFERENCE

+9V

−9V

BATT_GND

SIG_1

HIGH PASS FILTER

SIG_1

C13
0.1uF

C14
0.1uF

SIG_2

R19
1.5M

R20
1.5M

BATT_GND

AMPLIFIER

U11
OP37G

SIG_2

R21
1K

BATT_GND

+9V

−9V

SIG_2

RV4
100k

RG18
10K

LOW PASS FILTER

C16
0.1uF

U12
OP37G

R22
16K

R23
16K

+9V

SIG_2

C15
0.1uF

R24
10K

−9V

BATT_GND

RG19
5K

RG20
10k

Channel_4_OUT

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CHANNEL 5

INSTRUMENTATION AMPLIFIER
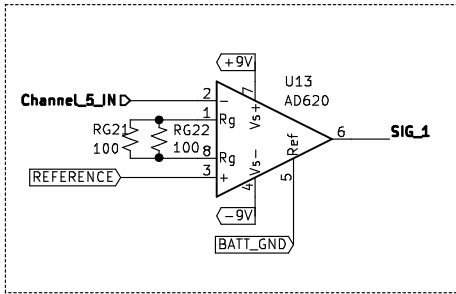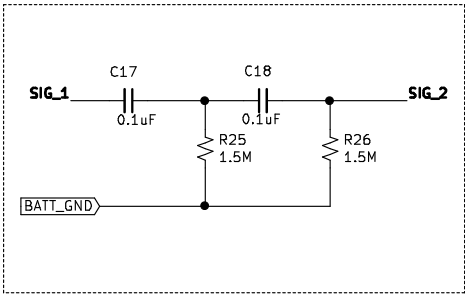
Channel_5_IN

U13
AD620

+9V
−9V

RG21 100
RG22 100

REFERENCE

BATT_GND

SIG_1

HIGH PASS FILTER

SIG_1

C17
0.1uF

C18
0.1uF

R25
1.5M

R26
1.5M

SIG_2

BATT_GND

AMPLIFIER

SIG_2

U14
OP37G

+9V
−9V

R27
1K

BATT_GND

RV5
100k

RG23
10K

SIG_2

LOW PASS FILTER

C20
0.1uF

SIG_2

R28
16K

R29
16K

C19
0.1uF

R30
10K

U15
OP37G

+9V
−9V

RG24
5K

RG25
10k

BATT_GND
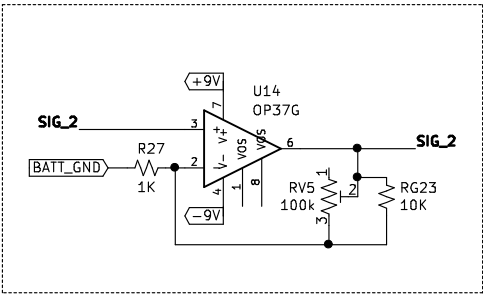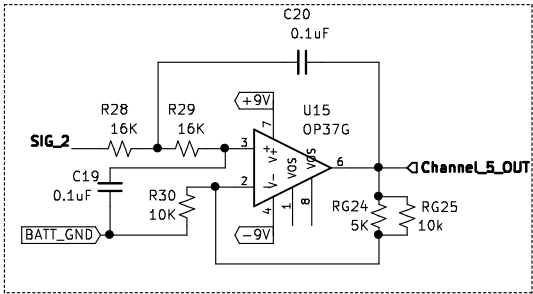
Channel_5_OUT

Upendra Subedi
Sanjay Rijal
Rhimesh Lwagun
Rabin Nepal

Sheet: /Channel 5/
File: Channel 5.sch

Title: EMG INSTRUMENTATION

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