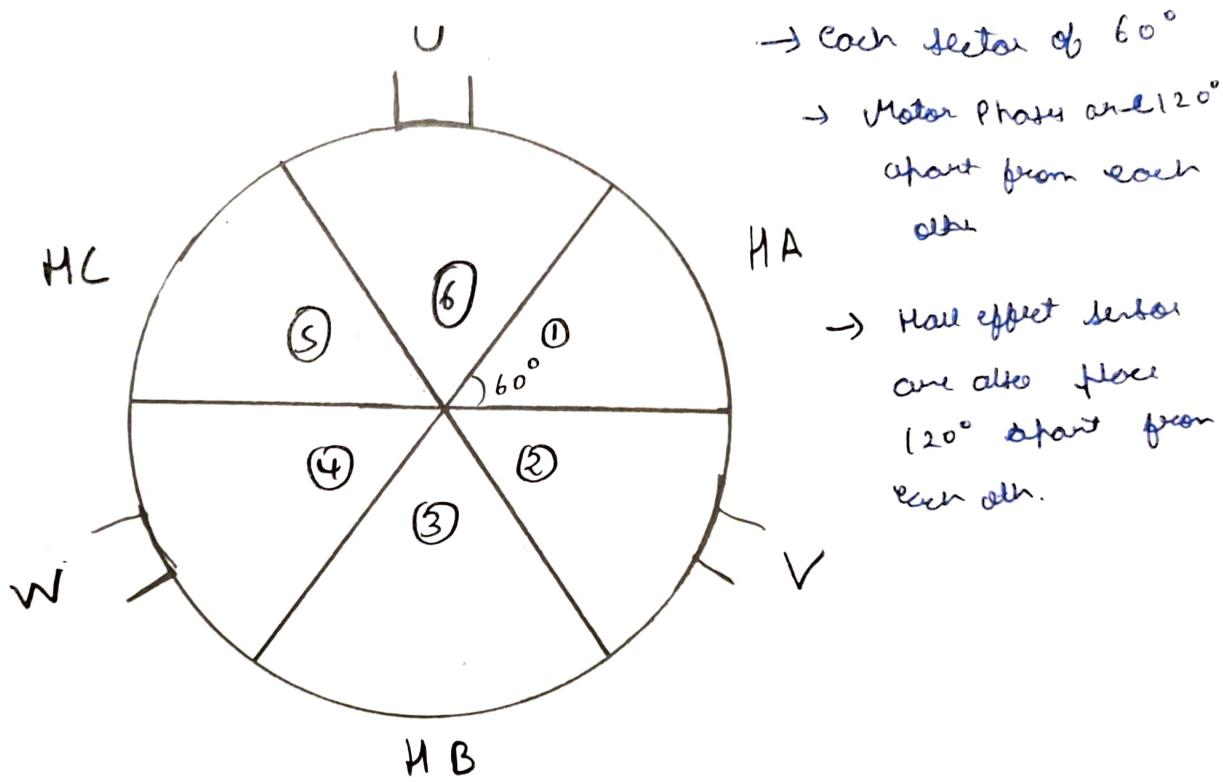


6-step Commutation

- The BLDC motor is divided into 6 sectors.
- UVW phases are placed 120° apart from each other.
- Hall effect sensor H1, H2, H3 are placed between U V W phases and all Hall effect sensor's are 120° apart from each other.

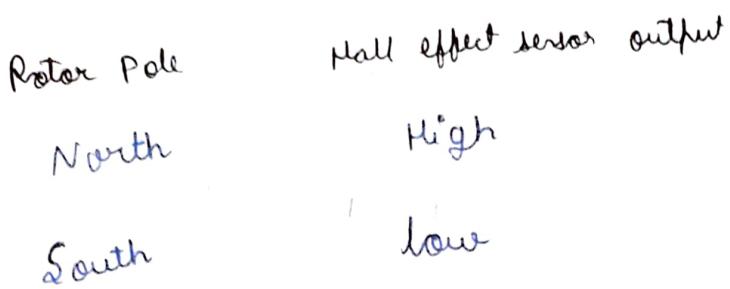


* Important Points

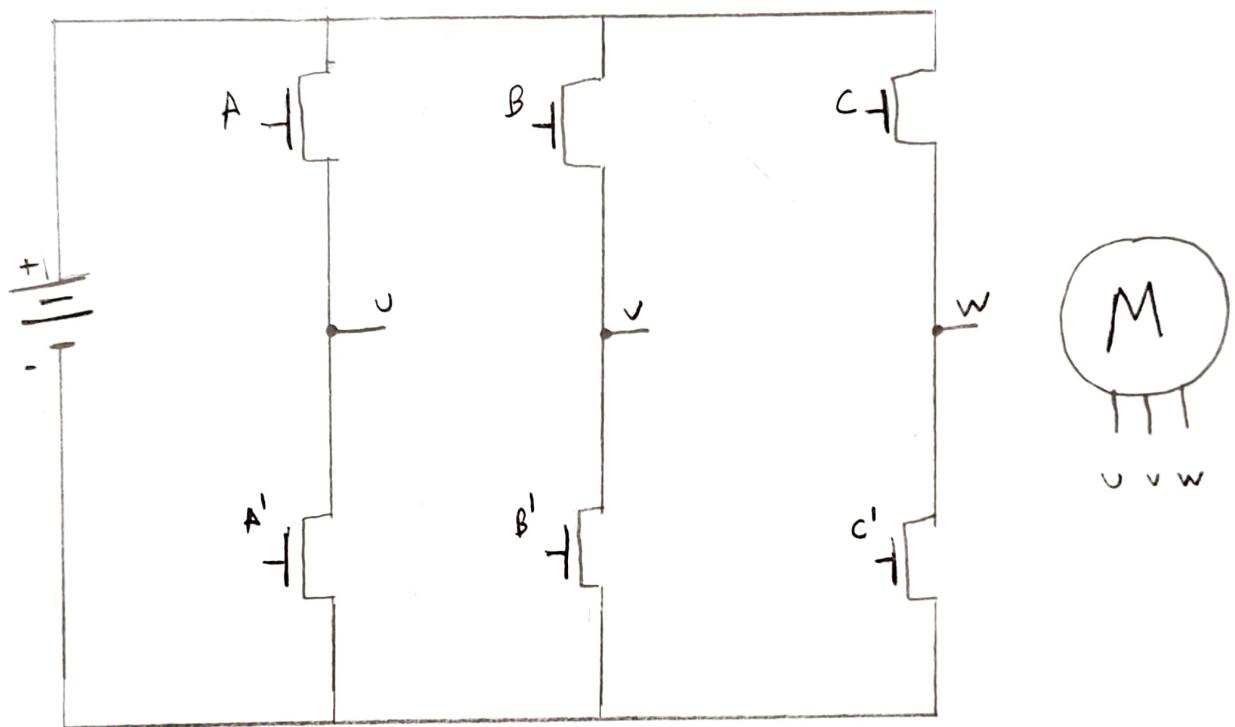
① Phases

- current enters a phase winding → That phase becomes south
- current leaves a phase winding → That phase becomes north

② Hall effect sensor

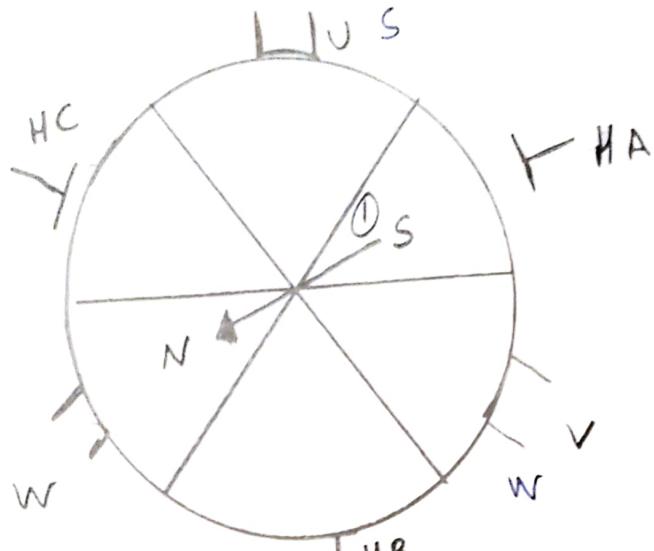


* 3 Phase Bridge



* Commutation

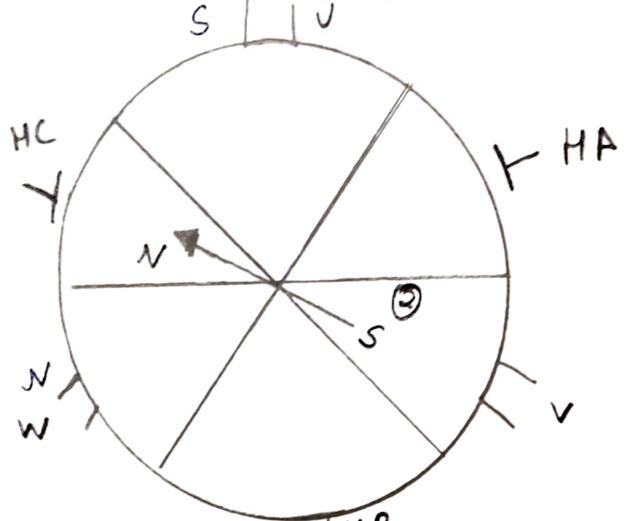
Sector	Hall sensor			Phase A		Phase B		Phase C	
	H _A	H _B	H _C	A	A'	B	B'	C	C'
1	0	1	1	1	0	0	1	X	X
2	0	0	1	1	0	X	X	0	1
3	1	0	1	-	-	1	0	0	1
4	1	0	0	0	1	1	0	X	X
5	1	1	0	0	1	X	X	1	0
6	0	1	0	-	-	0	1	1	0



Sector 4

~~H3 H2 H1~~
HA HB HC
O I I

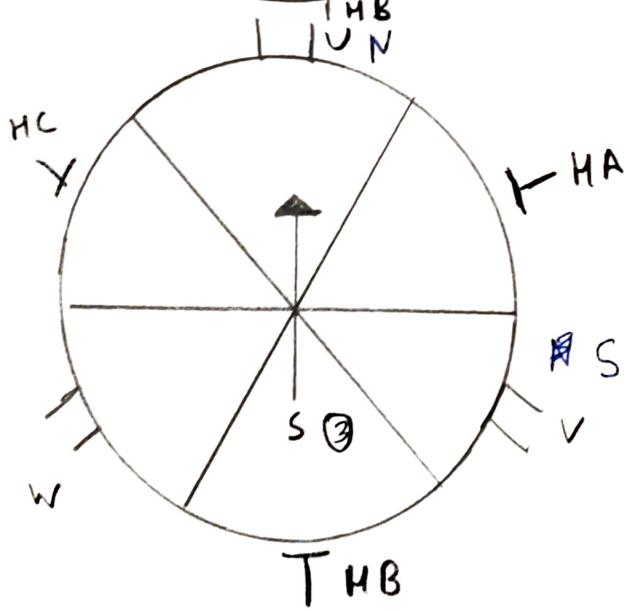
V V W
H L X
S N



Sector 2

HA HB HC
O O I

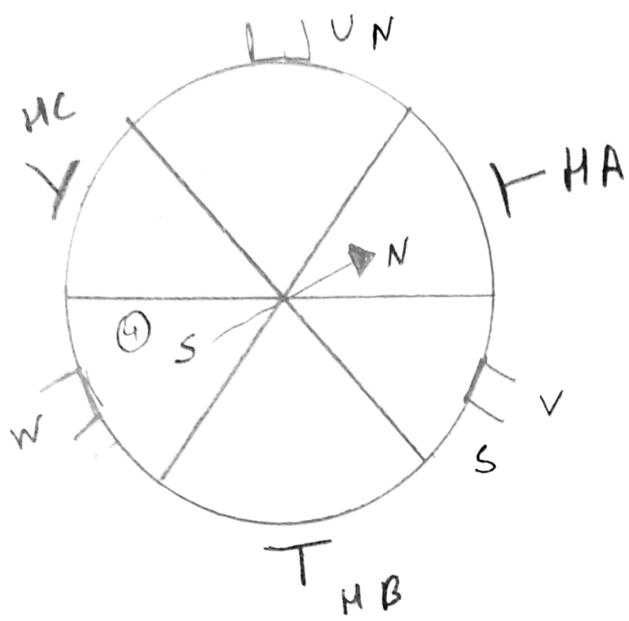
V V W
H X L
S N (Pole)



Sector 3

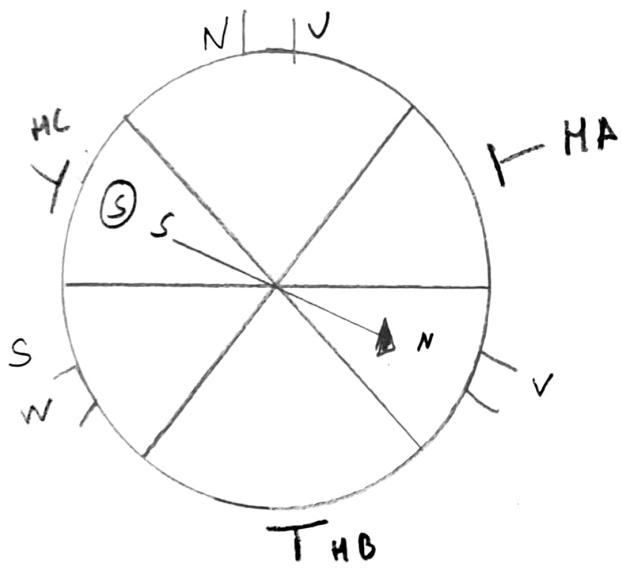
HA HB HC
I O I

V V W
X H L
S N



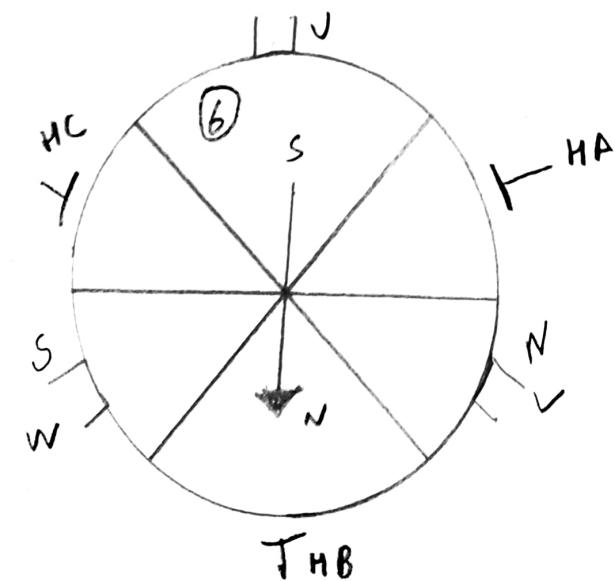
sector 4

HA	HB	HC	UVW
1	0	0	LHX
			N S



sector 5

HA	HB	HC	UVW
1	1	0	LXH
			N S



sector 6

HA	HB	HC	UVW
0	1	0	X LH
			N S