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COMMENTS AND CORRECTIONS

Corrections to "Modulation Strategies for Anisotropy-Based Position Estimation of PMSMs Using the Neutral Point Voltage"

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In the above article [1], there are a few errors that are corrected in the following.

1) In (11) of the above article, the self-inductance in the zero-axis should be L_{00} instead of $2L_{00}$. Consequently, the equation should read:

$$\boldsymbol{L}^{\mathrm{s}} = \boldsymbol{T}_{\mathrm{C}}\boldsymbol{L}^{\mathrm{p}}\boldsymbol{T}_{\mathrm{C}}^{-1} = \begin{bmatrix} L_{\alpha\alpha} & L_{\alpha\beta} & 2L_{0\alpha} \\ L_{\alpha\beta} & L_{\beta\beta} & 2L_{0\beta} \\ L_{0\alpha} & L_{0\beta} & L_{00} \end{bmatrix}. \tag{1}$$

2) In (31), an offset of -1/3 is missing in the components of the inductance ratio vector. The equation should read:

$$\Delta u_{\mathrm{NAN}} = -\Delta u_0 = \left[\kappa_{\mathrm{a}} - \tfrac{1}{3} \;\; \kappa_{\mathrm{b}} - \tfrac{1}{3} \;\; \kappa_{\mathrm{c}} - \tfrac{1}{3}\right] \Delta \boldsymbol{u}^{\mathrm{p}}_{\mathrm{term}}. \tag{2}$$

3) In Fig. 8(a) of the above article, the vectors on the right side should be labelled $\boldsymbol{u}_3$ and $\boldsymbol{u}_6$, as shown in Fig. 1, instead of $\boldsymbol{u}_2$ and $\boldsymbol{u}_5$.
4) In the second-last paragraph of Section III-C, the authors accidentally referred to Fig. 8(c) instead of Fig. 8(b). The sentence in question should read:
"In [12], the authors proposed to shift the pulses of a standard SVM to guarantee minimum measurement vector times. If applied to edge-aligned PWM, it would be similar to the approach shown in Fig. 8(b)."
5) In Table 3 of the above article, there is a slight inaccuracy in the values of Ψ_{PM} for motors M2 and M3. This is due to an erroneous conversion from the information in the manufacturer's data sheets. The correct values are: $\Psi_{\mathrm{PM}} = 3.26$ mVs (originally 3.11 mVs) for motor M2 and $\Psi_{\mathrm{PM}} = 1.27$ mVs (originally 1.21 mVs) for motor M3. Assuming a sinusoidal waveform for the flux linkages, the values are derived as

$$\Psi_{\mathrm{PM}} = \frac{k_{\mathrm{M}} \cdot \pi}{p \cdot \sqrt{3} \cdot 3} \tag{3}$$

(see [2, pp. 445–450]), where k_{M} are the torque constants provided in the manufacturer's data sheets [3] and [4].

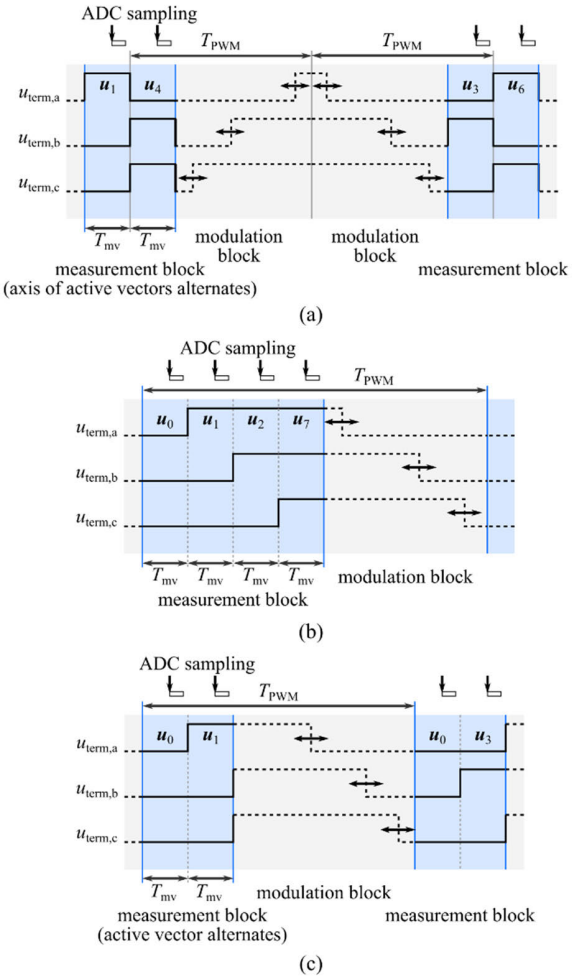

FIGURE 1. Illustration of modified SVM approaches that were used in previous works. Differences are found mainly in the measurement block: (a) using opposing active vectors in alternating axes [9]; (b) using two zero vectors and two neighboring active vectors [16] and (c) using one zero vector and one active vector in alternating axes [11]. (Corrected version of the figure from [1], references in the caption refer to the ones from the original article.)

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