



FIELD ORIENTED CONTROL METHOD IN ELECTRIC DRIVE TECHNOLOGY

What is Electric drive?

Drives are systems employed for **motion control**

Require **prime movers**

Drives that employ **electric motors** as prime movers are known as **Electrical Drives**

ELECTRIC DRIVE

The diagram illustrates two paths for electric drives. The top path is orange and labeled 'DC Drive' and 'Motor DC'. The bottom path is green and labeled 'AC Drive' and 'Motor AC'. Each path consists of a drive block on the left and a motor block on the right, connected by a thin white line. The entire diagram is set against a light gray circular background.

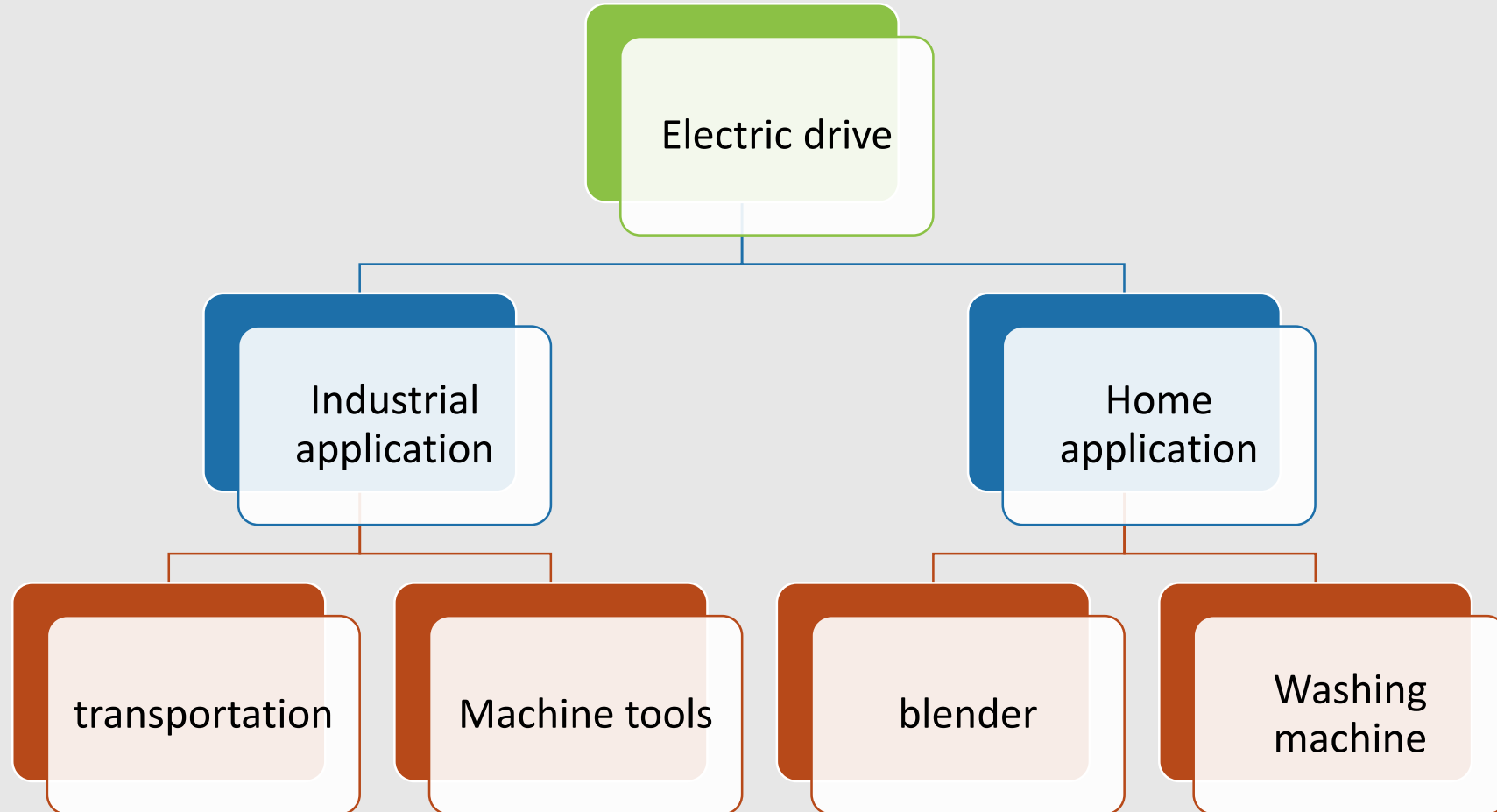
DC
Drive

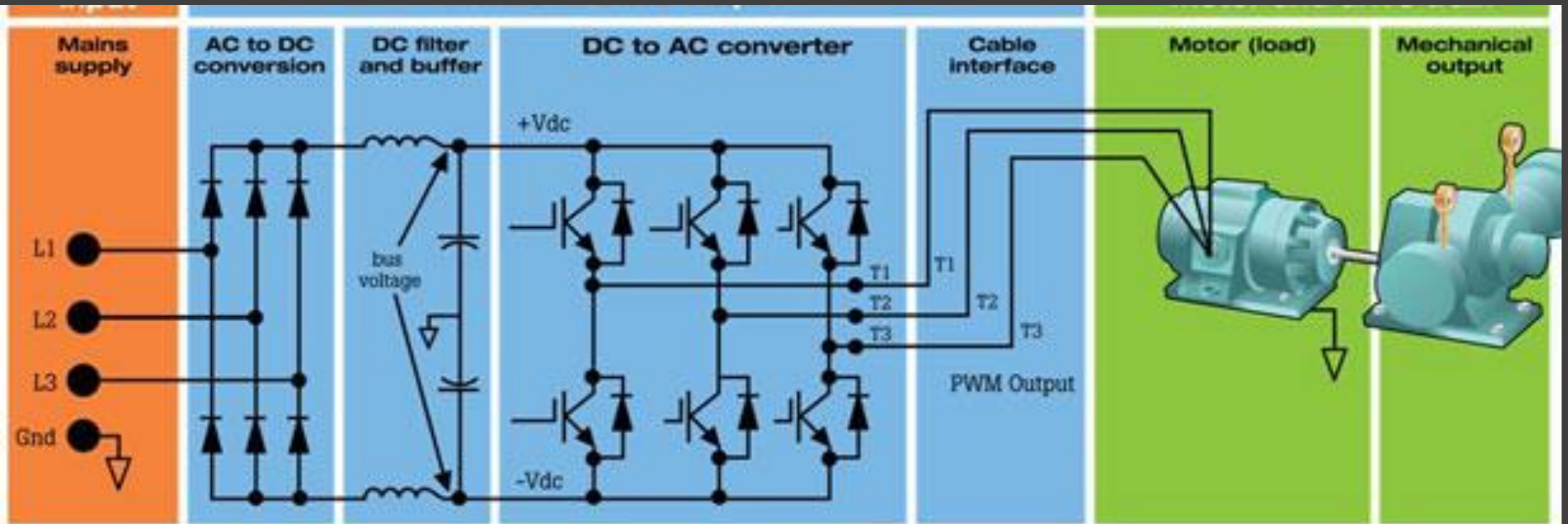
Motor
DC

AC
Drive

Motor
AC

Electric Drive

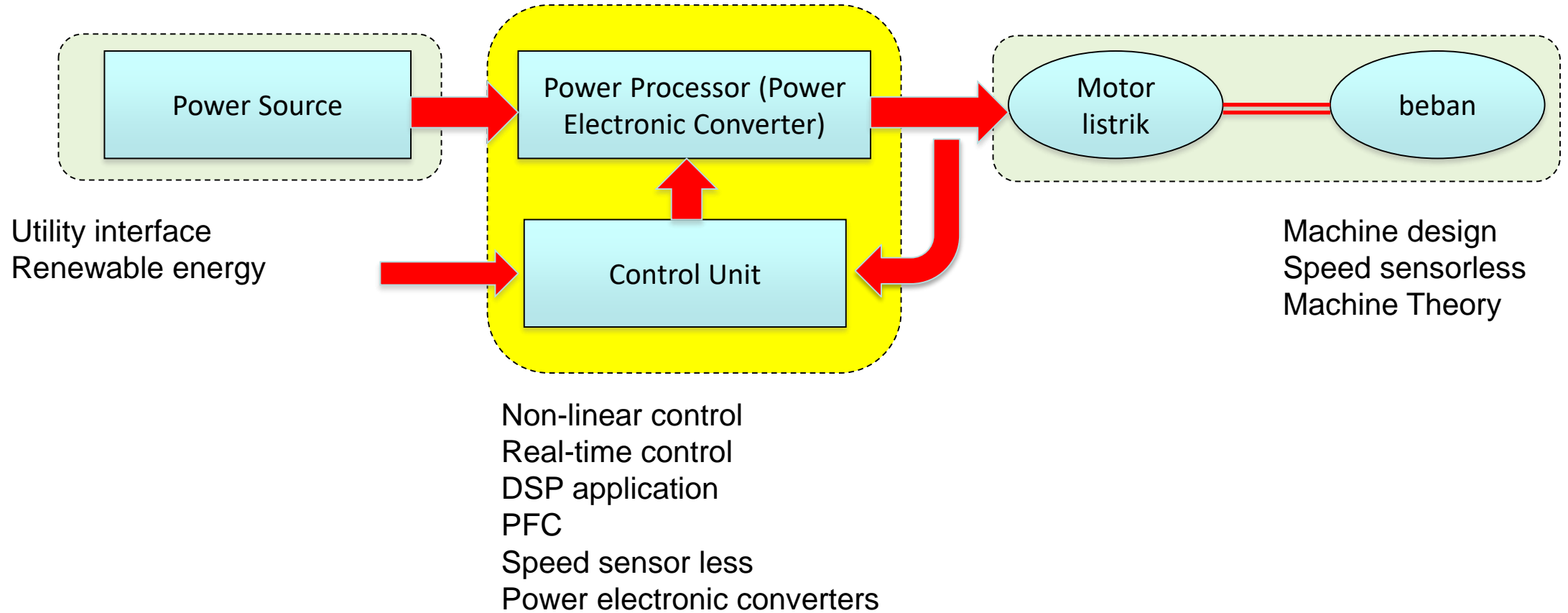




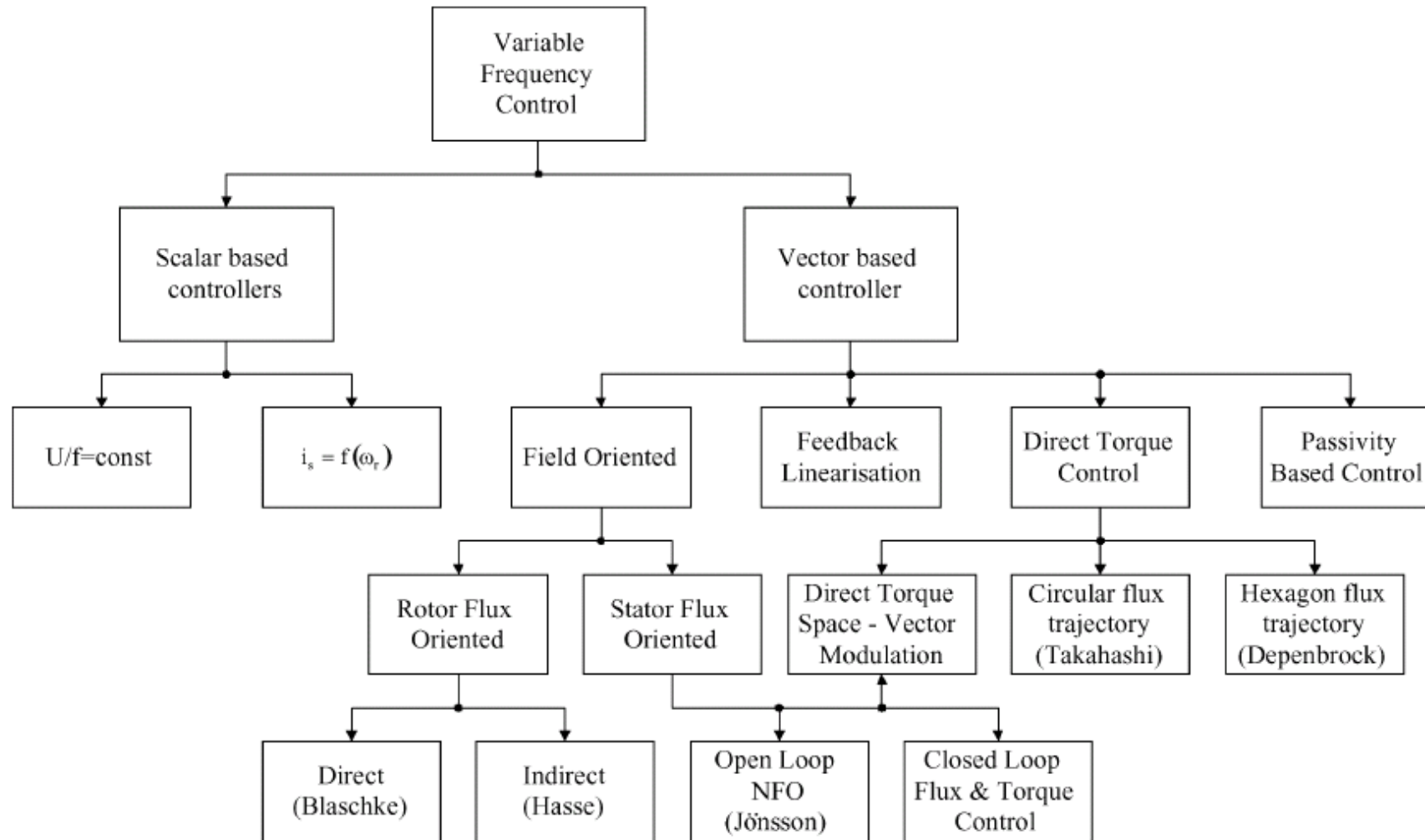
Conventional
electric drives

- Bulky
- Inefficient
- inflexible

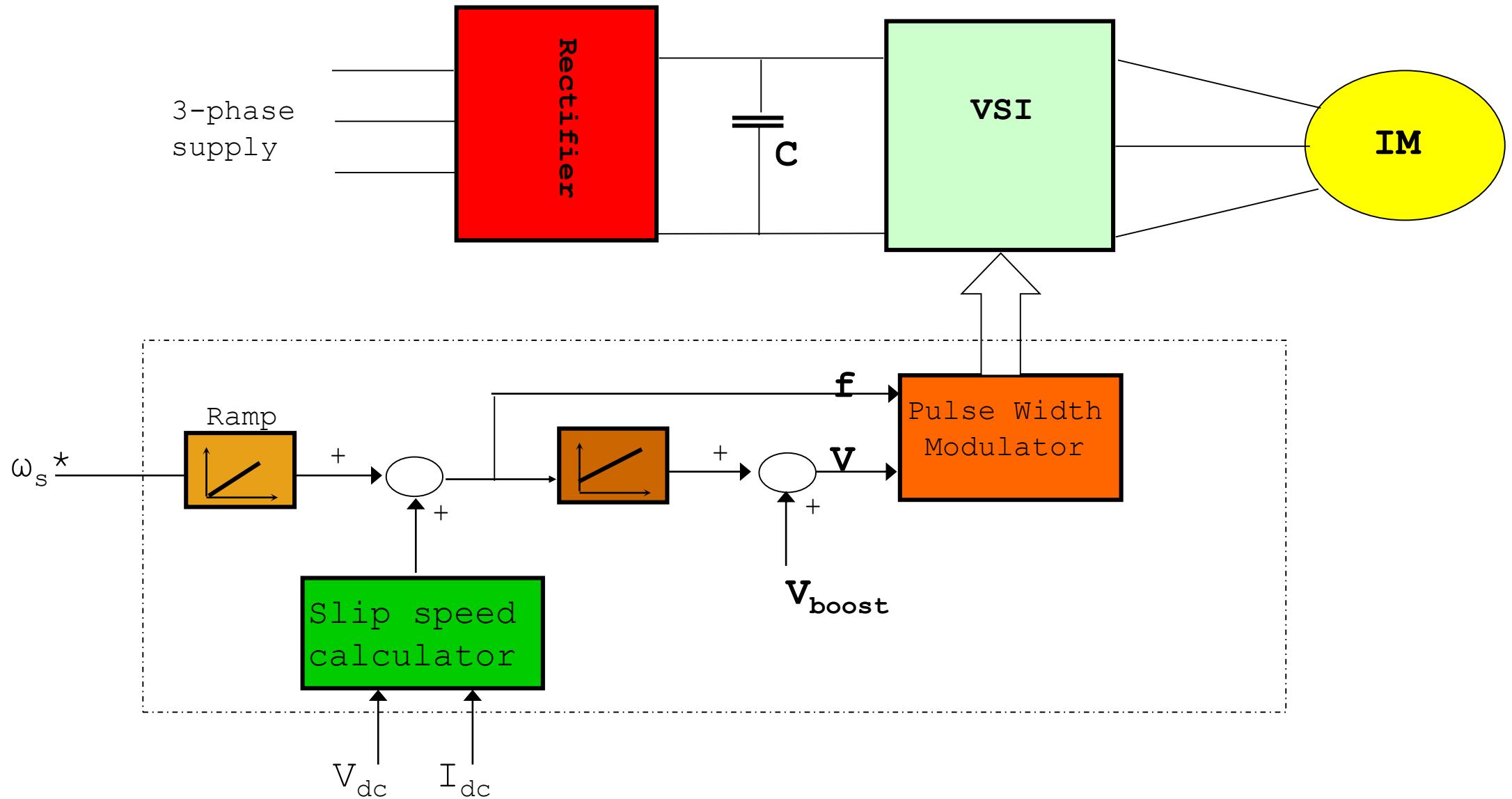
Modern electric drives



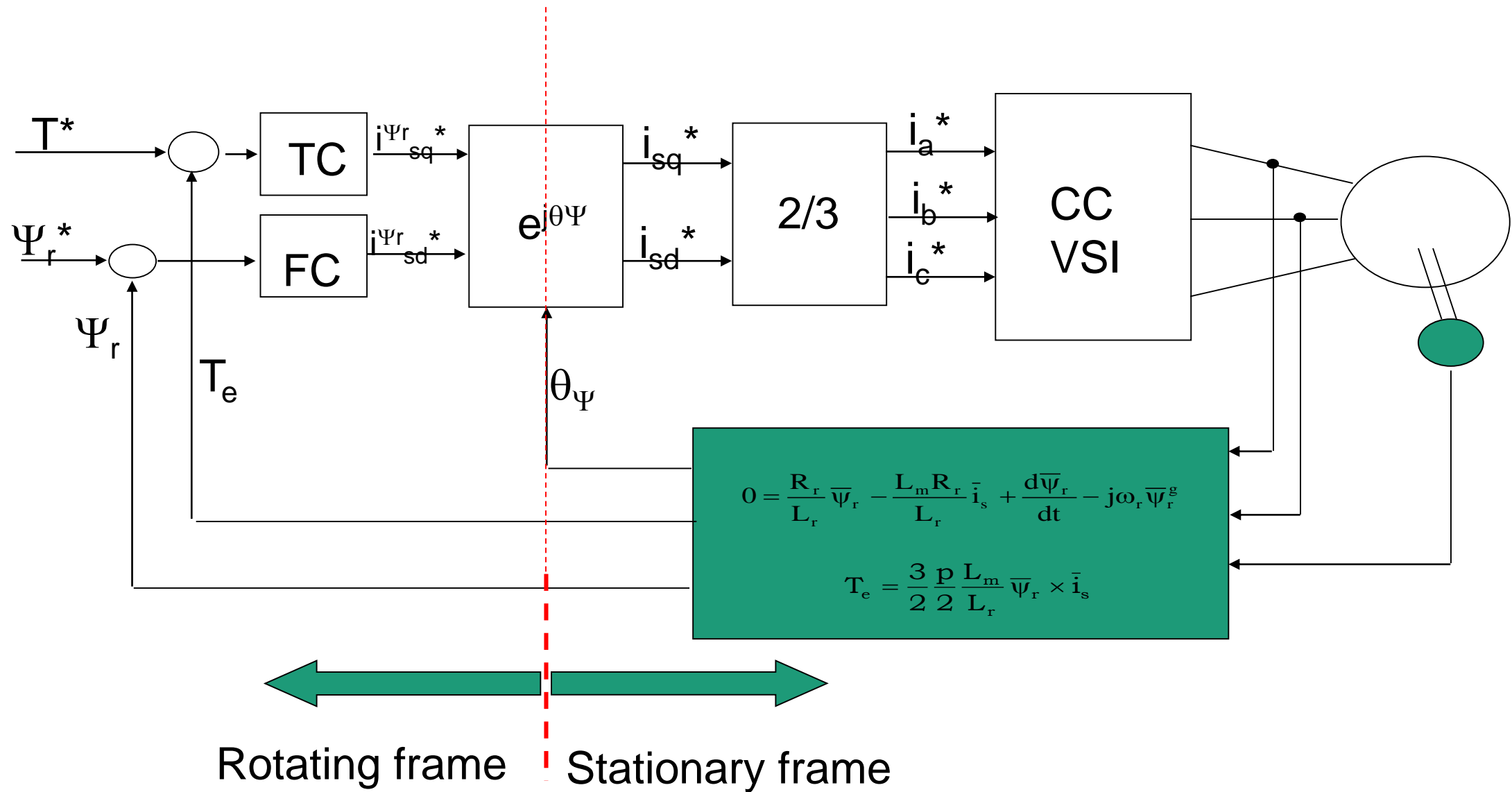
Classification of IM drives (Buja, Kamierkowski, “Direct torque control of PWM inverter-fed AC motors - a survey”, IEEE Transactions on Industrial Electronics, 2004.)



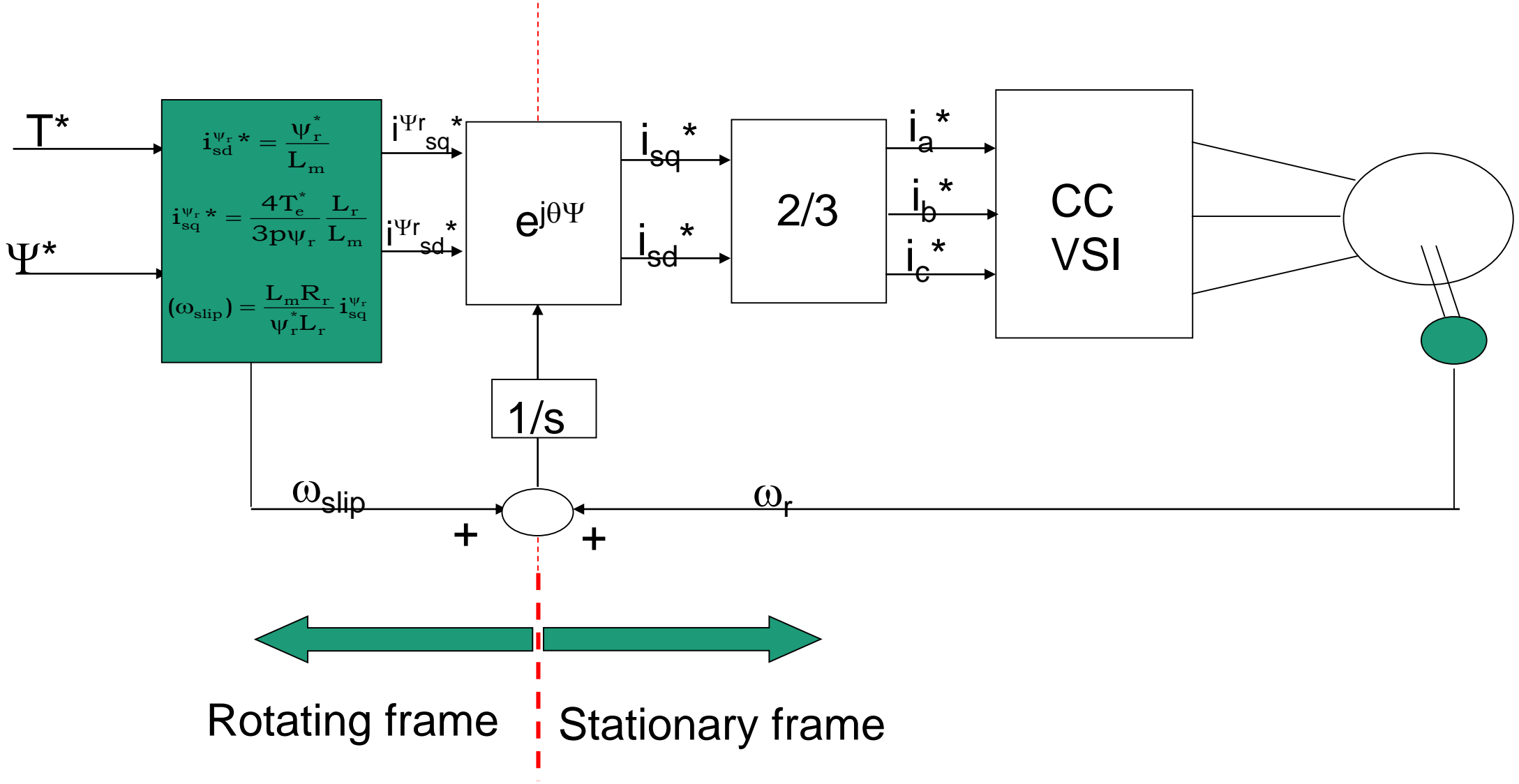
Constant V/f — open-loop with slip compensation and voltage boost



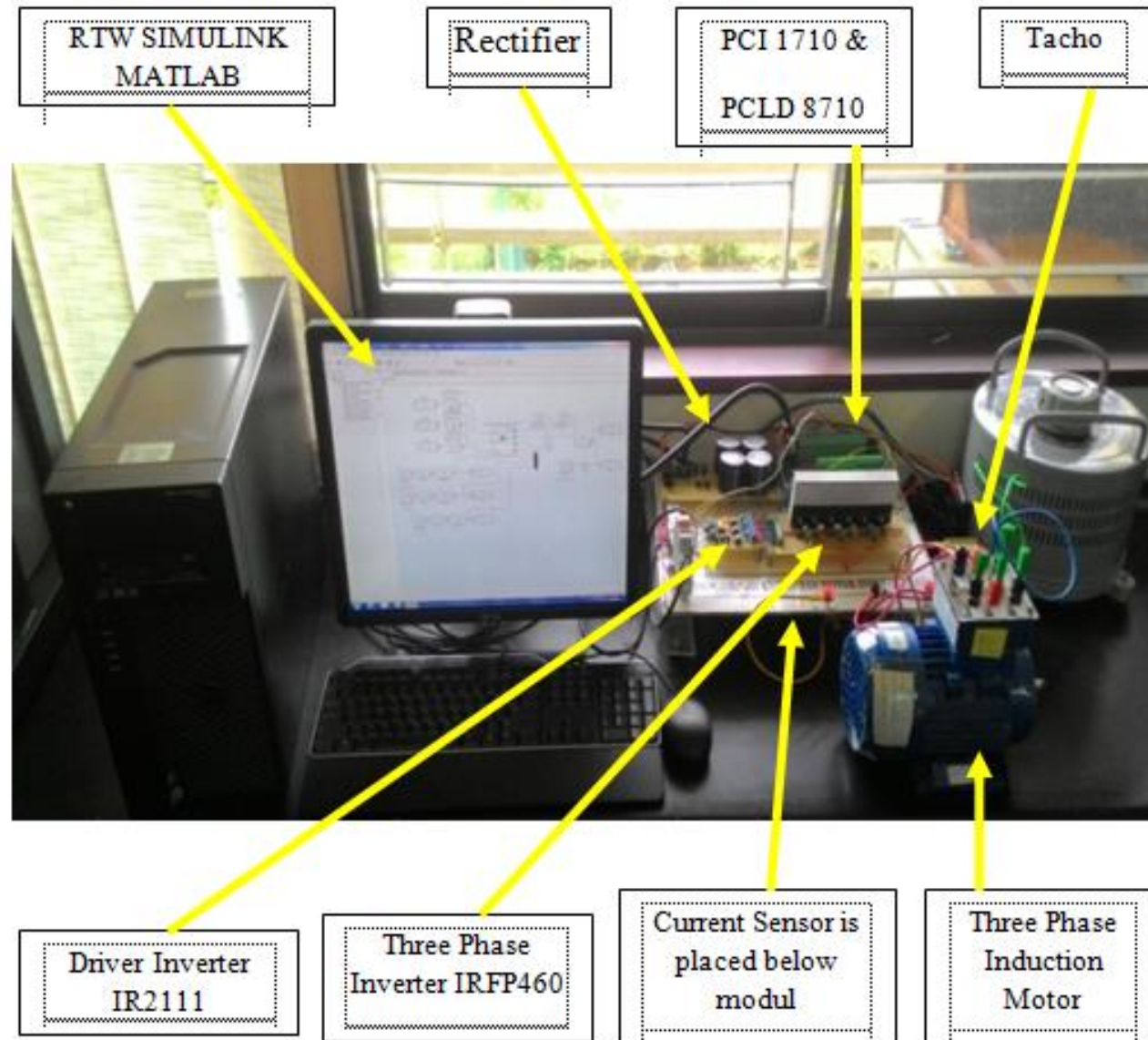
FOC of IM drive - direct



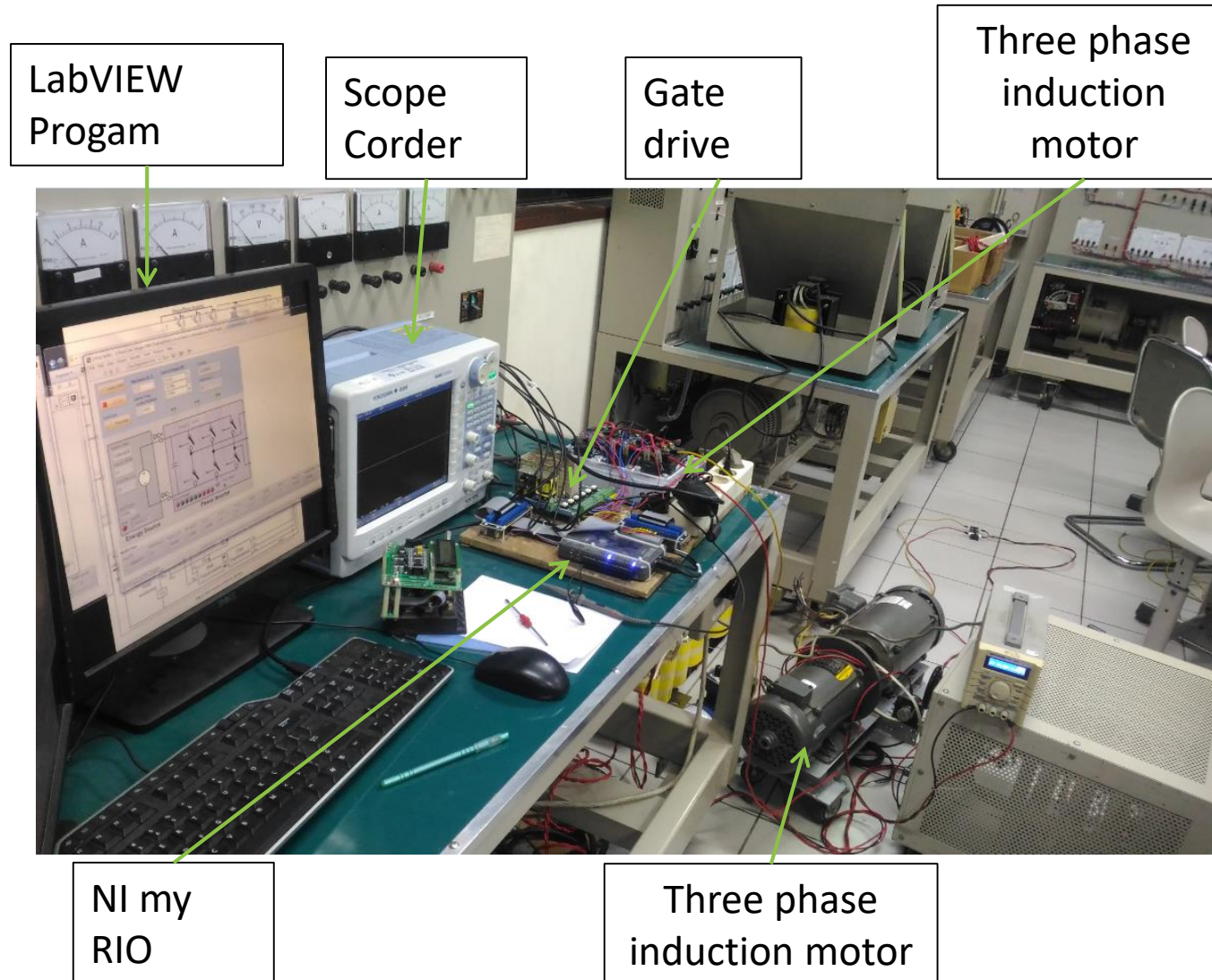
FOC of IM drive - indirect

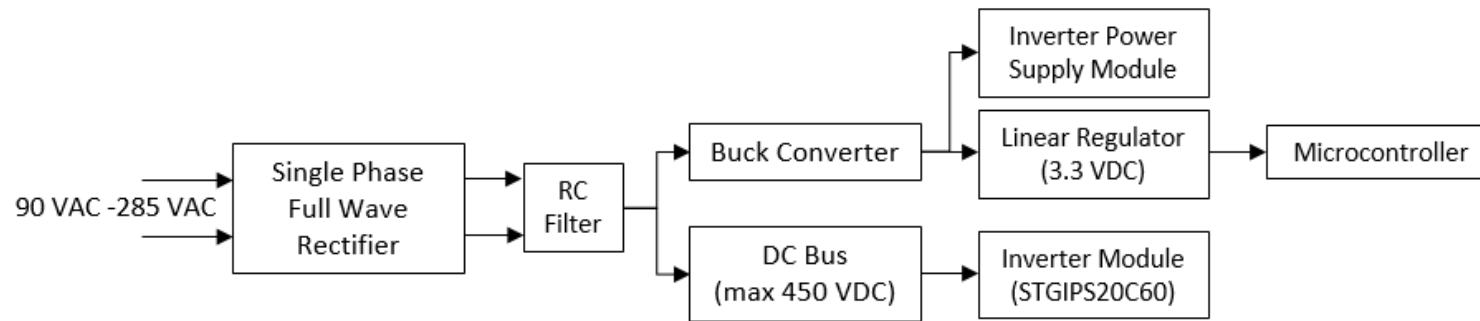
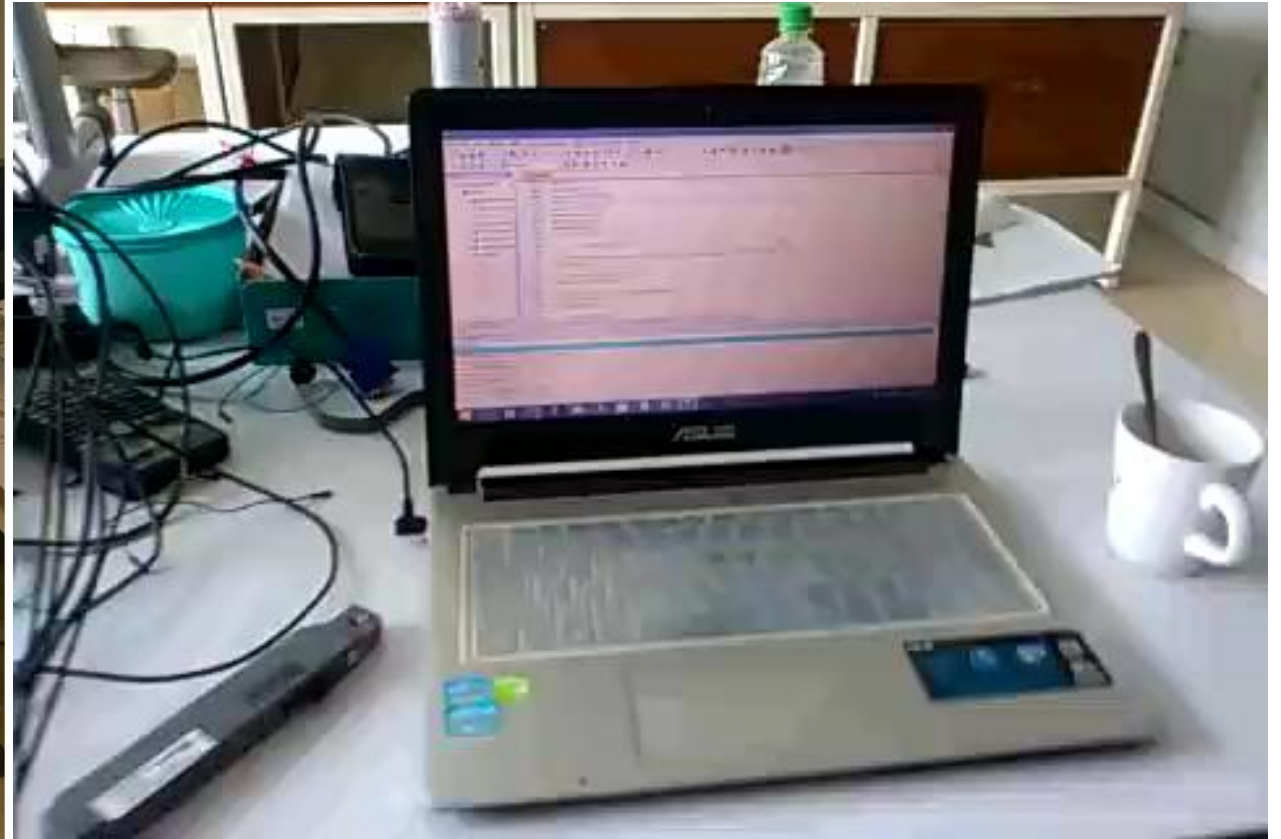
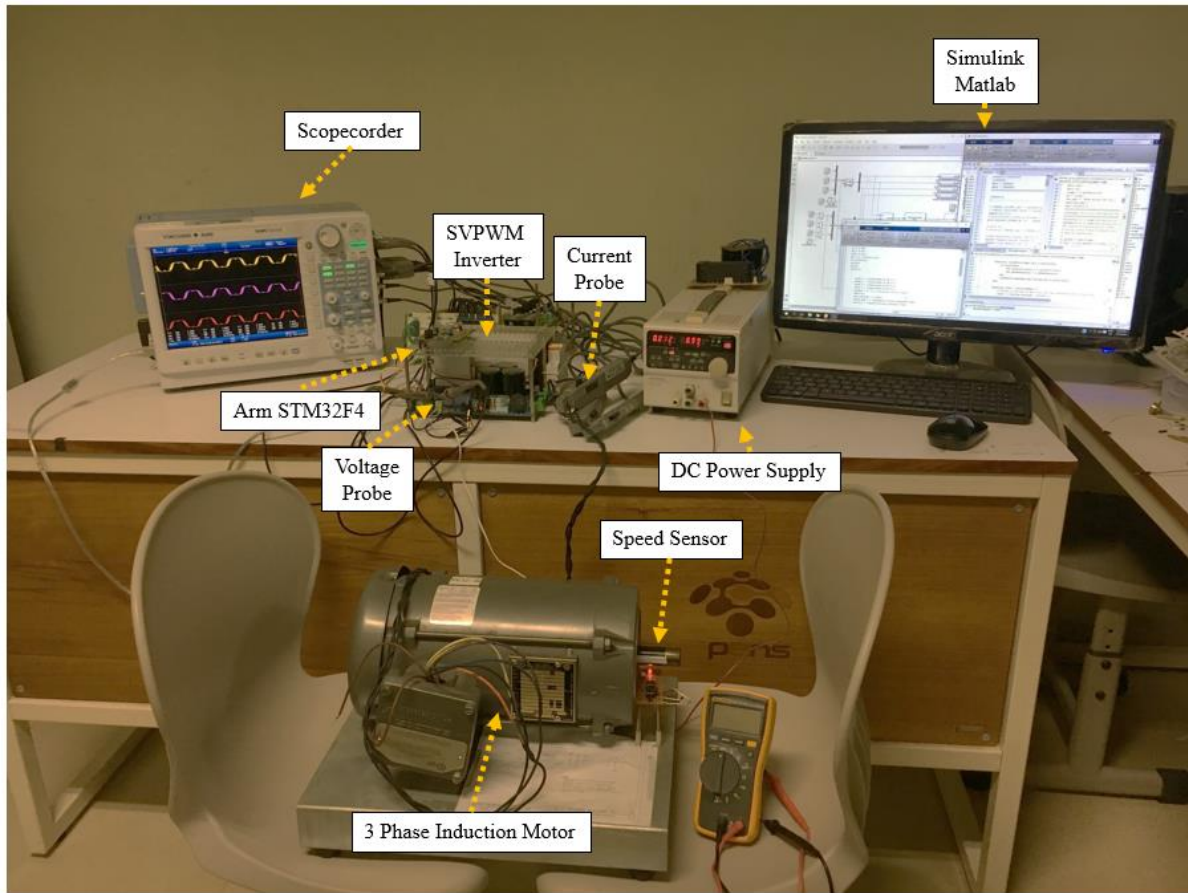


Integration System



Hardware





The power distribution diagram of the experimental system