Part I:
Electric Scooter Motor Drive Whole System Configuration

- Two-quadrant DC/DC converter fed DC motor drive.
- Driving control.
- Random PWM switching to reduce the acoustic noise.
- Regenerative braking control.
- Road running test.

Part II:
The Developed Flyback SMR

- 110VAC is converted to 13.8VDC.
- Power factor correction control.
- PI output voltage regulation control.
- Analog control.

Part III: Some Experimental Results

- DC-DC converter under constant-frequency PWM switching mode
- Gating signal, battery voltage and armature current
- PWM carrier and its spectrum
- Armature current and its spectrum

- DC-DC converter under random frequency PWM switching mode
- Gating signal, battery voltage and armature current
- PWM carrier and its spectrum
- Armature current and its spectrum

- Motor regenerative braking control characteristics
- Gating signal, battery voltage and armature current under constant switching frequency
- Gating signal, battery voltage and armature current under varying switching frequency (Enlarge waveform)