

UCSI  
LIBRARY

**UCSI**

University College Sedaya International



**SCHOOL OF ENGINEERING**  
**(JANUARY – AUGUST 2005)**

**INTELLIGENT SINGLE PHASE  
INVERTER**

**NAME : YAP KING HWA**

**ID : 1000310049**

**MAJOR : ELECTRICAL & ELECTRONIC ENGINEERING**

**FIRST SUPERVISOR : DR. EYAD MOHD RADWAN**

**SECOND SUPERVISOR : MR. MOEY**

**PROJECT COORDINATOR : DR. KHEDR M.M.ABOHASSAN**

## ABSTRACT

*The objective of this project is converting the DC output of a battery to AC at mains frequency for feeding the critical loads. It is also known as inverter. The inverter used an IC SG3525A Pulse Width Modulation Controller to control the fast switching speed MOSFETs transistor. In addition, automatic shut off the inverter occurs if output voltage is not within desired limits, temperature exceeds the specified limit, and overload occurs for the protection scheme. This inverter employs the built-in Analog-to-Digital converter channels of the PIC16F877A microcontroller to convert the analogue output voltage values from the inverter into equivalent digital values in order to display the frequency value on three 7-segment displays. This microcontroller also used to shut off the inverter if the inverter is not operating in available condition. The circuit design, simulation and practical results demonstrate the capability of the DC-to-AC converter to perform the desired outcomes.*

**Keywords:** Inverter, IC SG3525A, PIC16F877A, 7-segment displays