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CURRENT SHUNT MONITOR
MODULATES FAN SPEED

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ACKNOWLEDGEMENT

Thank to Allah S.W.T that give us the time, strength and also opportunity to settle and complete this final year project (KEU 380) and the progress report as title “Current – Shunt Monitor Modulates Fan Speed. It has been a tough challenge to us where we have to complete our report as well as to ensure that our project can be run. Beside that we should submit the project and present it to the public in the time that has been given to us

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ABSTRACT

Current- shunt monitor modulates fan speed is a system design to control the value of current through the circuit. This project wants to show that the movements of fan are base on the current than the temperature. The first question really is, what are we trying to do with the fan control circuit? Our goal is to reduce fan noise and control their speed.

In this fan control circuit the important device are current-shunt-monitor ICs like INA168 where it must be connected to current-shunt resistors at supply voltages of up to 60 V. The basic function of this IC are useful in a wide range if circuitry. The current shunt resistor is a device that can give any value resistor where will increase or decreasing the current flow. Put a resistance in series with the fan, creating a voltage drop and it will affect the speed of fan. What makes the current shunt monitor IC unique is that when it derives its power supply from a low voltage, say 5V, the inputs can still be connected to a shunt resistor at a much higher voltage.

Load is the element where we will connect it series to the CPU. It can be chance with another device. For example we can use resistor as the load but the value of resistively must be high. This project was design to make sure all components in CPU or other electric device always cooling.

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CHAPTER 1

INTRODUCTION

1.1 Background

Current-shunt monitor modulates fan speed project is closely to instrumentation. This project is focusing the useful of current where was used shunt- resistor and change the expected where temperature is a point in cooling method.

The fan speed versus temperature profile is characterized by two temperature points. T1 (below which the fan runs at half speed, with a supply voltage of 6V) and T2 (above which the fan runs at full speed, with the full 12V supply). The desired temperatures for T1 and T2 determine the values of resistors, which scale and shift the control voltage at the output of the error amplifier. In this project current- shunt monitor IC INA168 was used to guide the current flow. This current flow will control the fan speed. If R is high we need to used high supply and the current will through it is low. Supply in this project must be in voltages supply. Range of voltage that was used in this project is in 2.7 V to 60 V.

This project uses some techniques to be successful. First, it use shunt resistor. Shunt resistor is a device where can give use any value of resistor that we need. In electricity the shunt means a low-resistance connection between two points in an electric circuit that forms an alternative path for a portion of the current it also called bypass. If we use high value of resistor and high voltage supply we will produce low current so fan will move slowly. Shunt resistor can be replacing with other device like rheostat or potentiometer. This device has same characteristic with shunt resistor.