

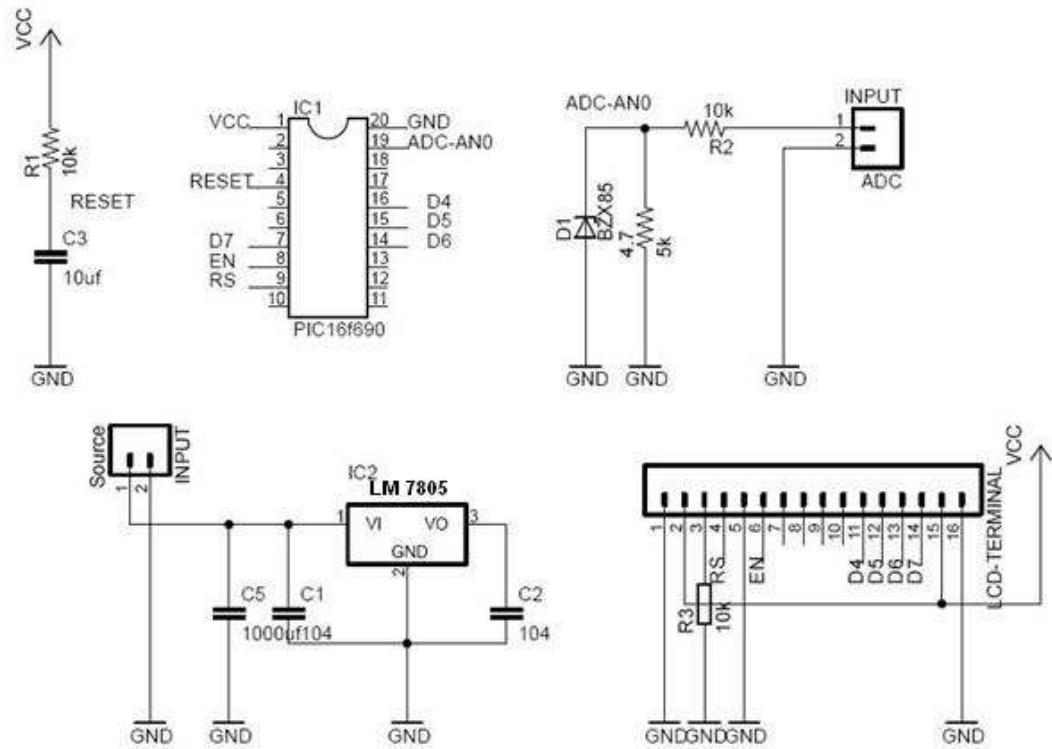
The infra red reflective object sensor work by simply emitting the infra red beam and when it encounter the white object surface than the infra red beam will be reflected back to the phototransistor; next the phototransistor and the 2N3904 transistor which formed the Darlington pair will start to conduct and will generate enough voltage across the 470 Ohm resistor to be considered by the PIC16f690 microcontroller build in Capture Compare Pulse width modulation(CCP)module input port as the logical “1“. When the infra red beam encounters the black tire surface than both of the phototransistor and 2N3904 transistor will turn off; and the voltage across 470 Ohm resistor will drop to 3.5 volt (logical “0“).

Therefore by timing the generated pulse period by the infra red reflective object sensor we could easily calculate the RPM using this following formula:

Frequency = $1/T$ Hz; T is the generated pulse period in second.

RPM (Rotation per Minute) = Frequency x 60

SCHEMATIC:



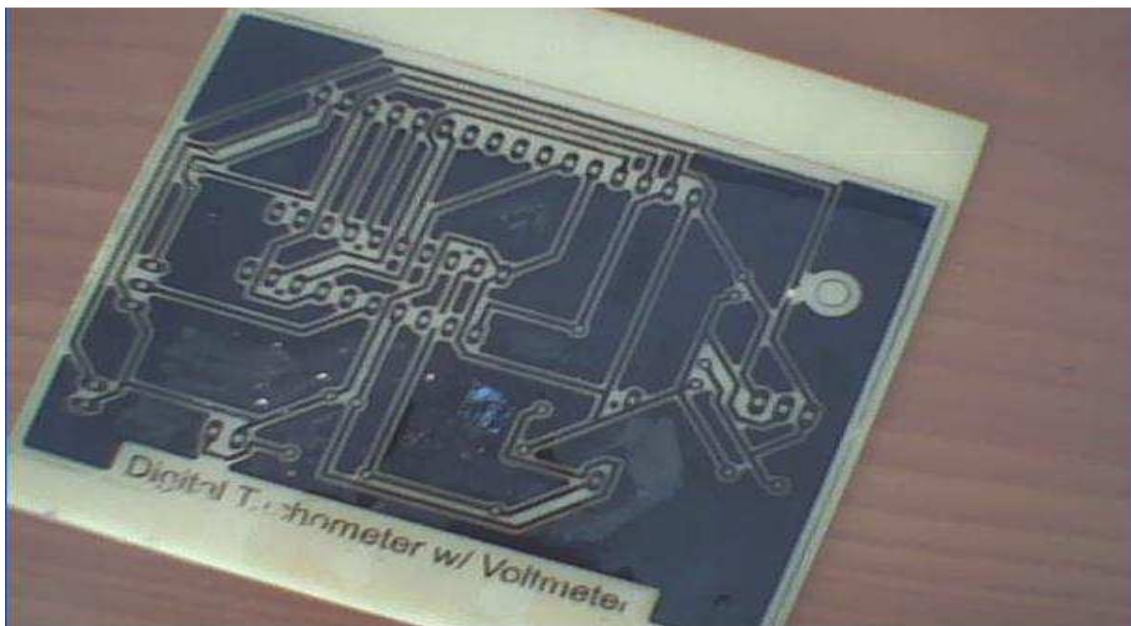
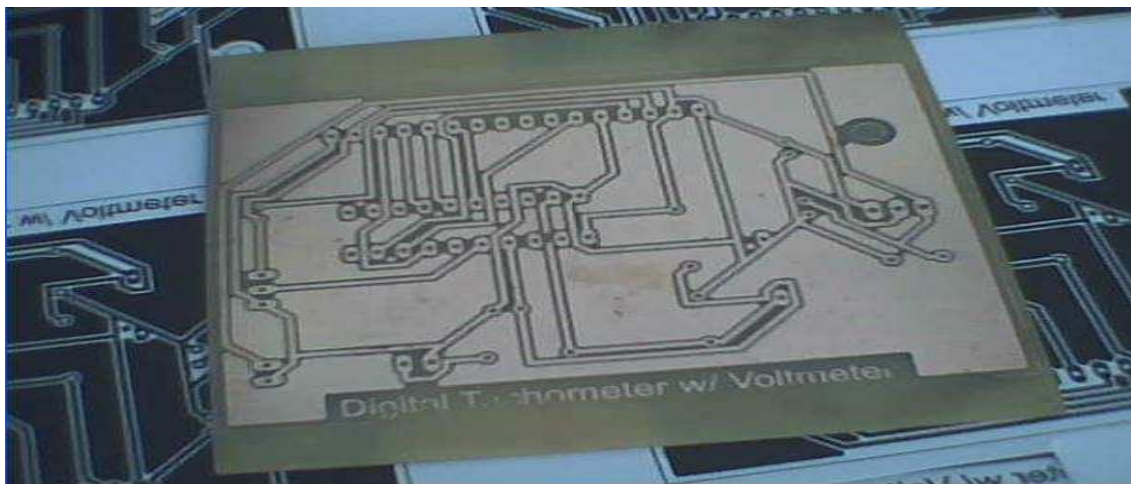
PCB DESIGN AND FABRICATION:

PCB DESIGN:

In creating schematic diagram the researcher uses the Eagle cadsoft for professional PCB design.

FABRICATION:

Toner transfer was used in creating the PCB shown below.



ACTUAL PROTOTYPE:

