

ADC based temperature sensor

$$V_{OUT} = T_C \times T_A + V_{0^\circ C}$$

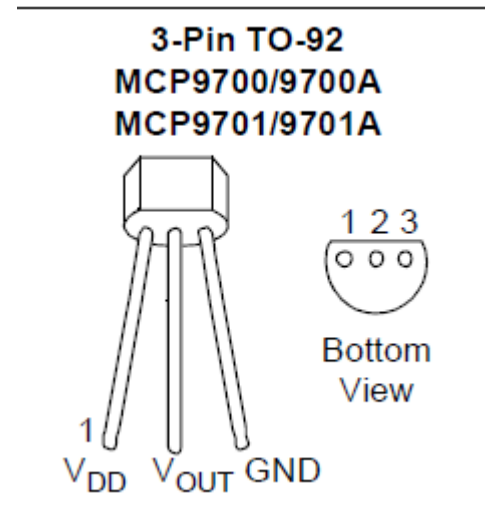
Where:

T_A = Ambient Temperature

V_{OUT} = Sensor Output Voltage

$V_{0^\circ C}$ = Sensor Output Voltage at $0^\circ C$
(see [DC Electrical Characteristics](#) table)

T_C = Temperature Coefficient
(see [DC Electrical Characteristics](#) table)



Sensor Output						
Output Voltage, $T_A = 0^\circ C$	$V_{0^\circ C}$	—	500	—	mV	MCP9700/9700A
Output Voltage, $T_A = 0^\circ C$	$V_{0^\circ C}$	—	400	—	mV	MCP9701/9701A
Temperature Coefficient	T_C	—	10.0	—	mV/ $^\circ C$	MCP9700/9700A
	T_C	—	19.5	—	mV/ $^\circ C$	MCP9701/9701A
Output Nonlinearity	V_{ONL}	—	± 0.5	—	$^\circ C$	$T_A = 0^\circ C$ to $+70^\circ C$ (Note 3)

Connections

- Check the red box for temperature sensor connection

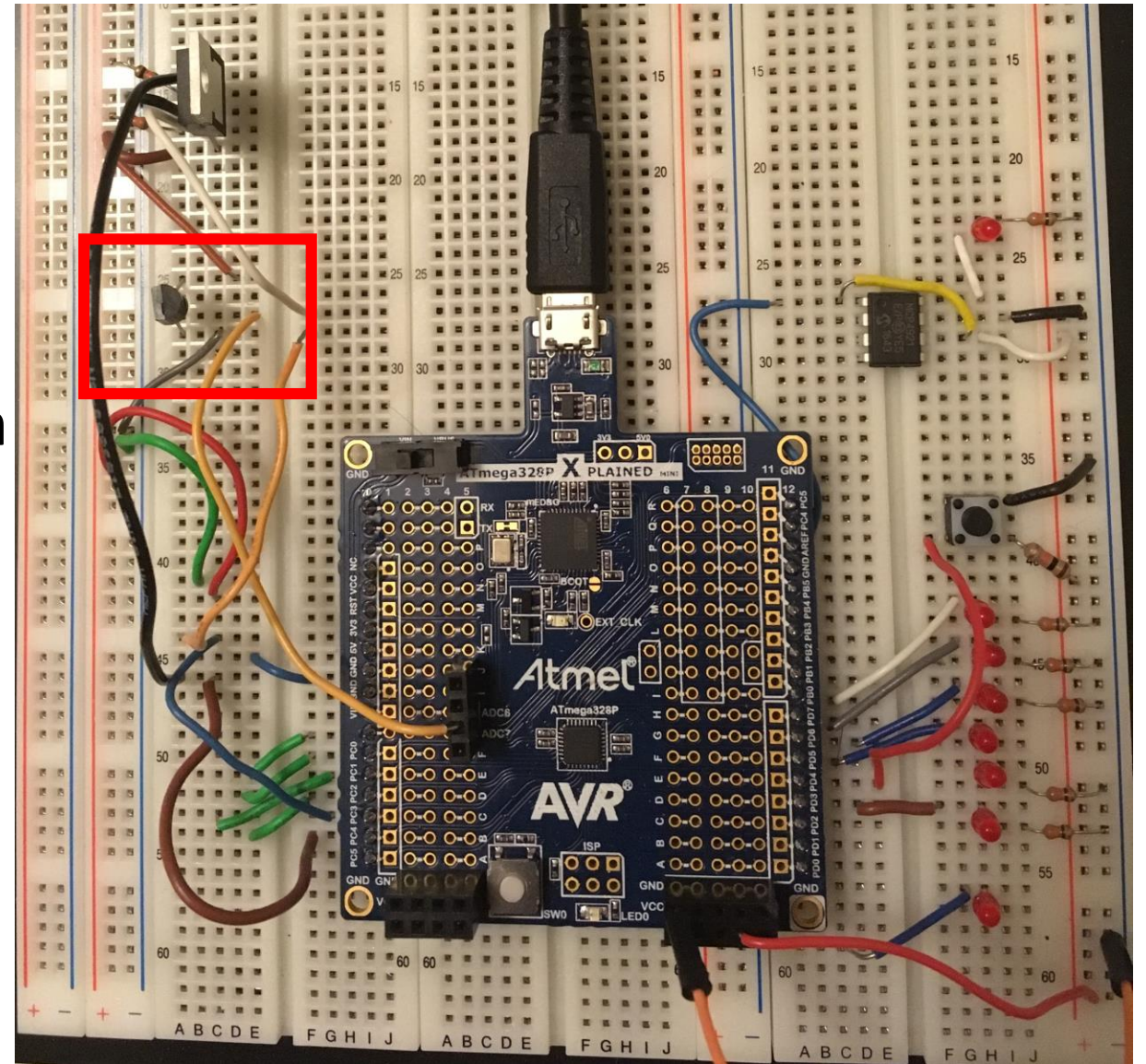


Fig1. Connections Temperature sensing using I2C and ADC