Tai Duc Nguyen - ECE 303 - 06/08/2020

Project

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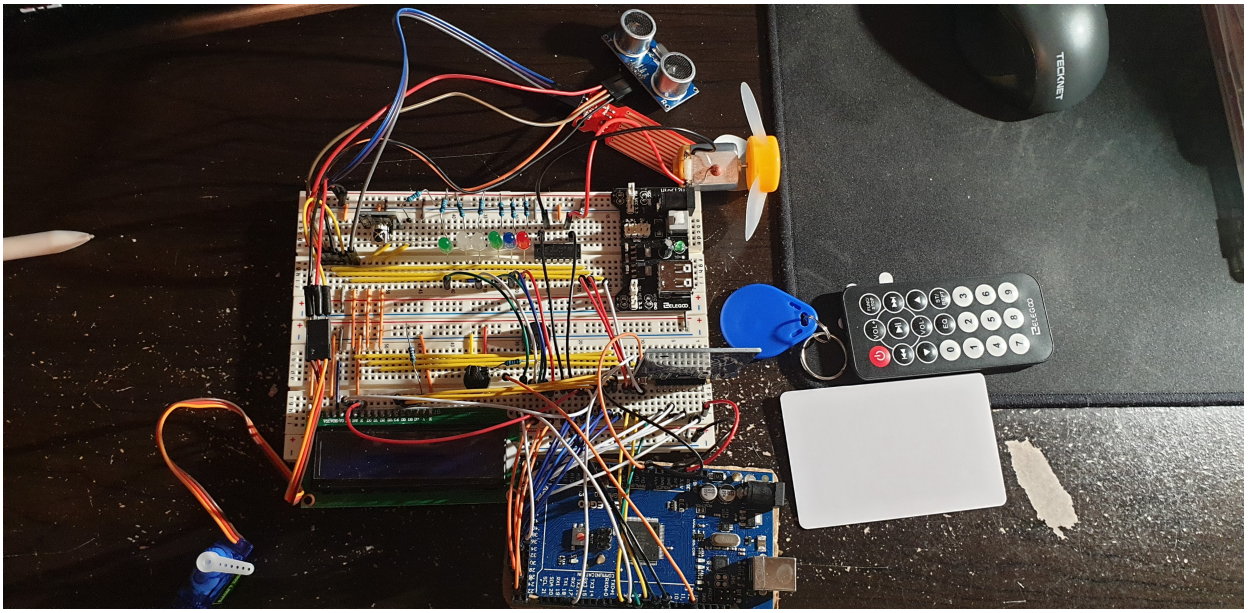
Photo of the setup



Video demonstration

https://1513041.mediaspace.kaltura.com/media/tdn47_ece303_online_project/1_rqlw4jj2

Current budget

The power supply provides maximum of 1000mA.

The motor's maximum load is 400mA

The servo's maximum load is 270mA

The LCD's maximum load is 160mA

All other sensor's load is 150mA

Total: 400 + 270 + 160 + 150 = 980mA < 1000mA

Data collection

The communication protocol between the arduino and computer (MATLAB) is SCPI. There are 3 main commands:
:MEAS:ALL will send all the available stored sensors values to MATLAB

:GET:ALL will send all the available states of the system to MATLAB

:SET:ALL x,y,z will set the LEDs to state x, servo to angle y, and motor speed to z(%).

The automatic control of the servo and motor is done from MATLAB (MATLAB sends commands to control the system) in the AUTO mode. Once MANUAL priviledge is evoked, MATLAB loses all control abilities until AUTO mode is evoked again by the user or the user become unauthorized.