RACING DASH SIMULATOR

Pentru pasionatii de simulatoare auto, pentru amatorii de gadget-uri tech, am pus cap la cap un device pe care il puteti confectiona acasa, cu piese relativ ieftine si cu un rezultat foarte incurajator.

Lista componente si materiale necesare:

NUME	CANTITATE	MAGAZIN	PRET
TM1638 Keypad	1	UNDA Tech	44.9
Arduino Nano128P	1	UNDA Tech	19,9 RON
MAX7219 Dot Matrix	1	UNDA Tech	20 RON
Cabluri / fire diverse	1	UNDA Tech	10 RON
Panou plexiglass	1	UNDA Tech	34,9 RON
Set imprimat 3D			
Folie carbon panou	OPTIONAL		

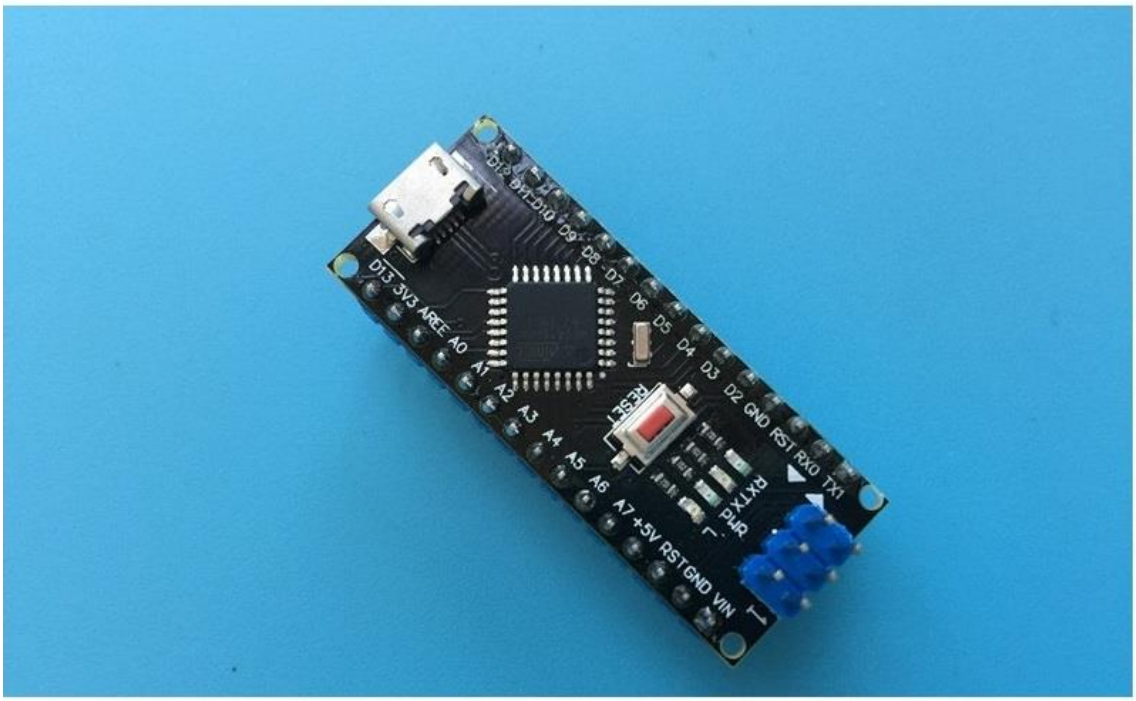
TOTAL: 129,8 RON

Toate piesele se pot cumpara de pe magazinul nostru, www.unda.tech/magazin . Folia de carbon este optionala si nu este inclusa in KIT-ul disponibil online, aceasta se poate fabrica cu usurinta urmand pasii din tutorial.

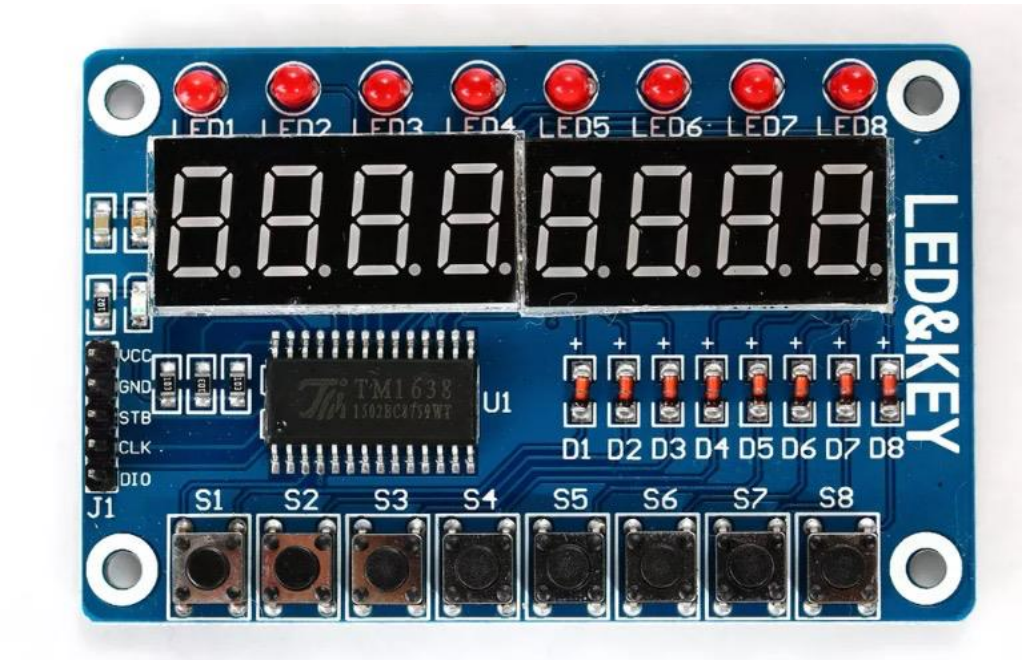
PASUL 1 – Identificarea componentelor

Electronice:

- Arduino Nano168P



- TM1638 Keypad Module

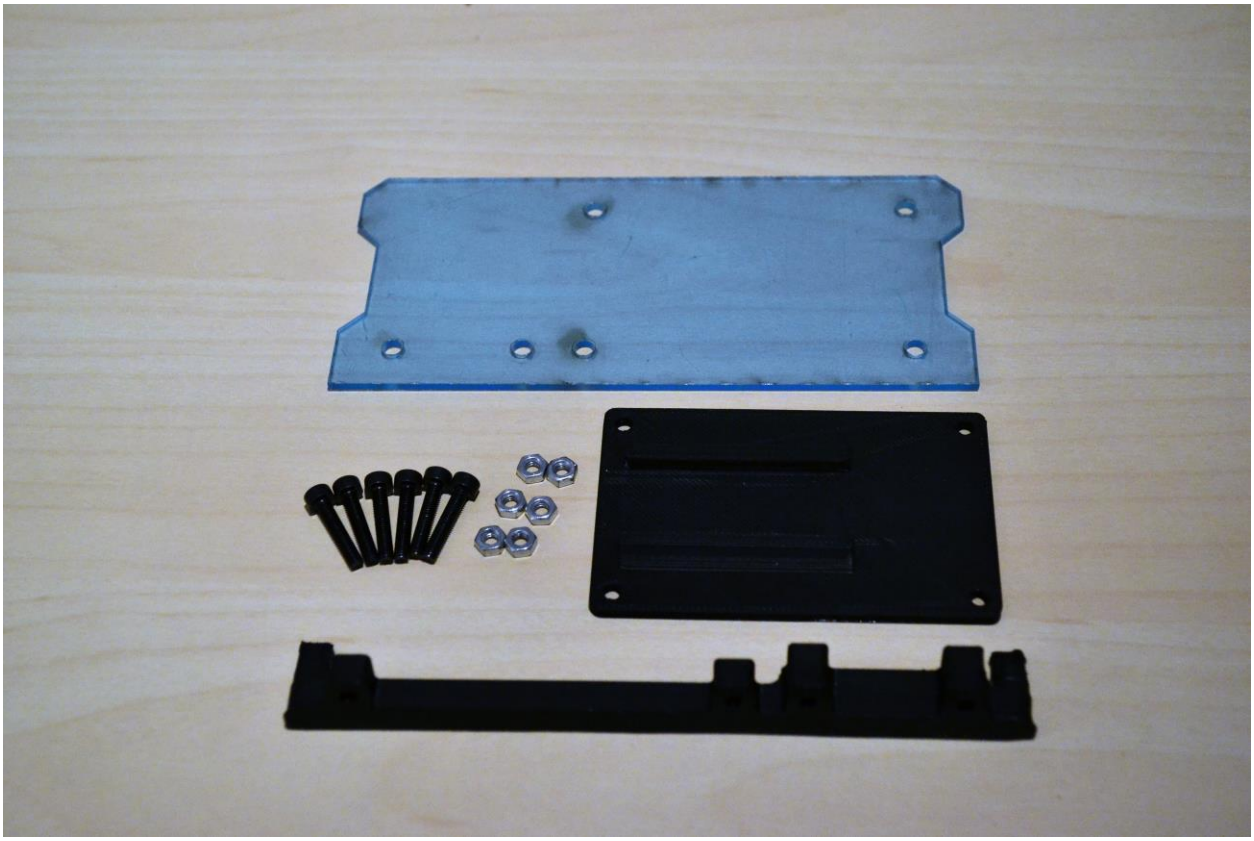


- MAX7219 Led Matrix

Accesorii:

- Fire diverse

- Kit Panou plexiglass + piese imprimate 3D



* kit-ul contine: - panou plexiglass transparent

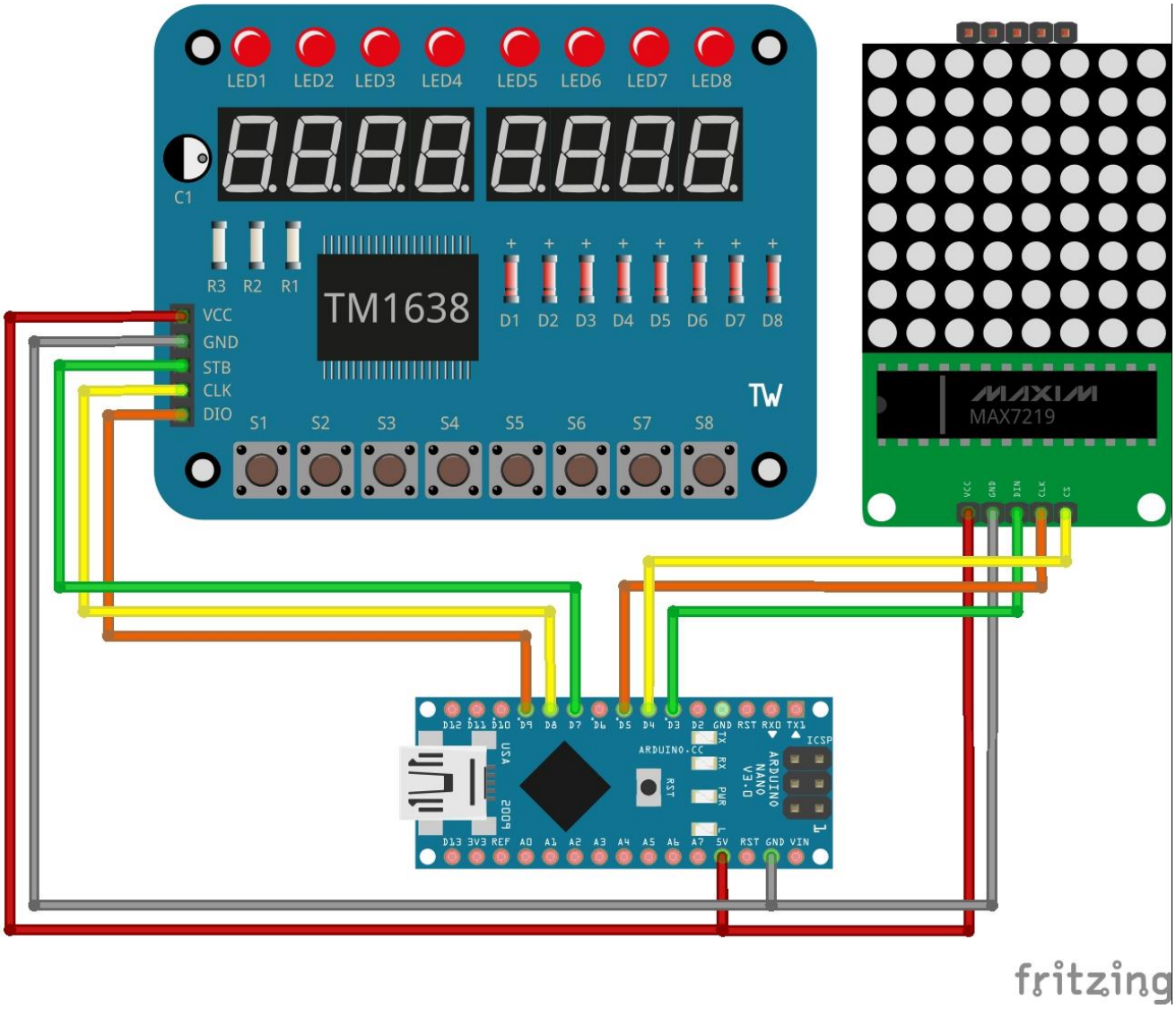
- suport arduino nano (backplate)

- stand Keypad si Led Matrix

- M3x25 (6buc) si M3 Nuts (6buc)

PASUL 2 – Conectarea componentelor electronice

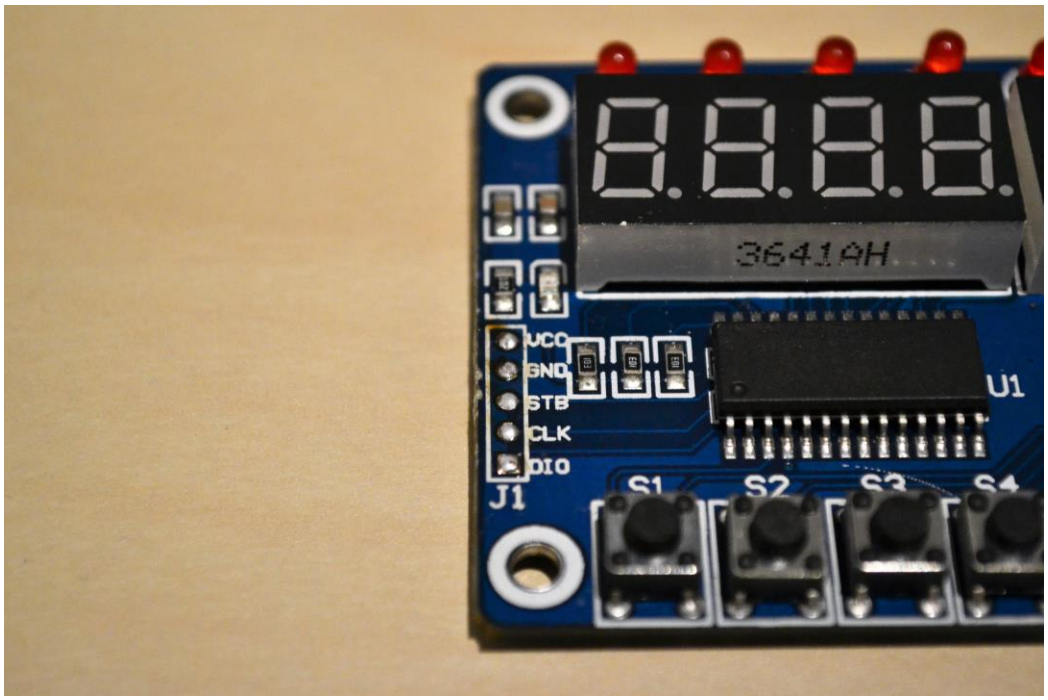
Conectarea componentelor se va face dupa urmatoarea schema :



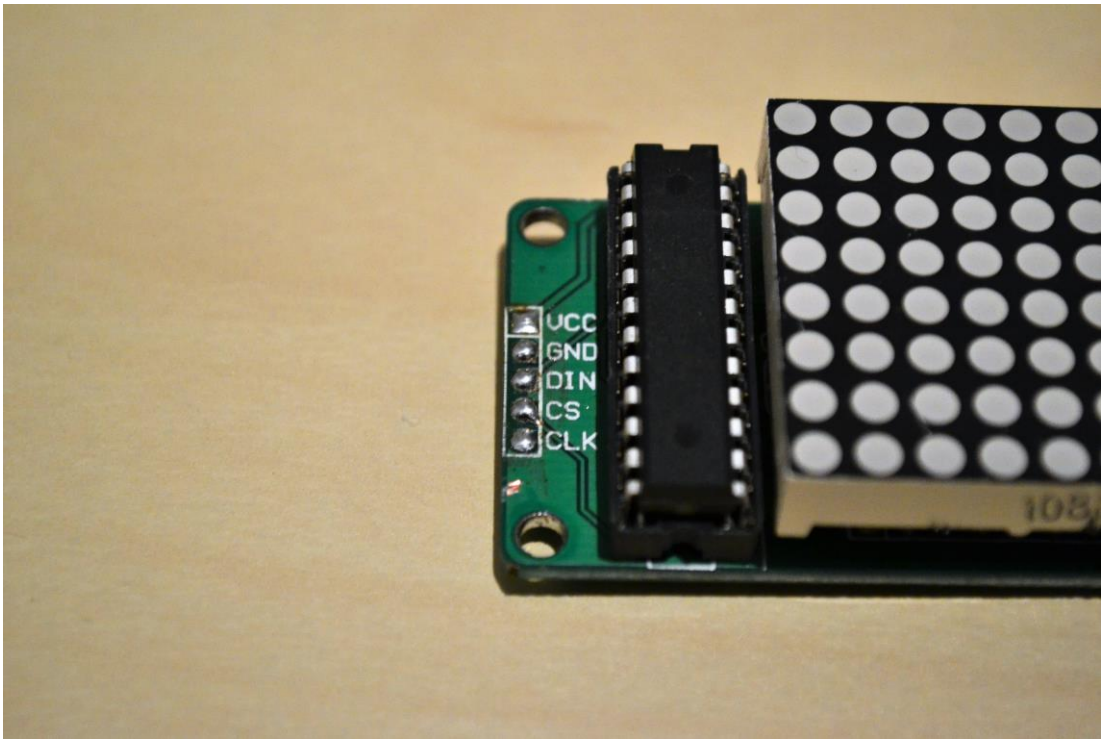
Part	Part Pin	Arduino Nano Pin
TM1638 KEYPAD MODULE	VCC	5V
	GND	GND
	STB	D7
	CLK	D8
	DIO	D9
MAX7219 LED MATRIX MODULE	VCC	5V
	GND	GND
	DIN	D3
	CLK	D5
	CS	D4

Se vizualizeaza conexiunile ce urmeaza a fi realizate, se decide lungimea firelor.

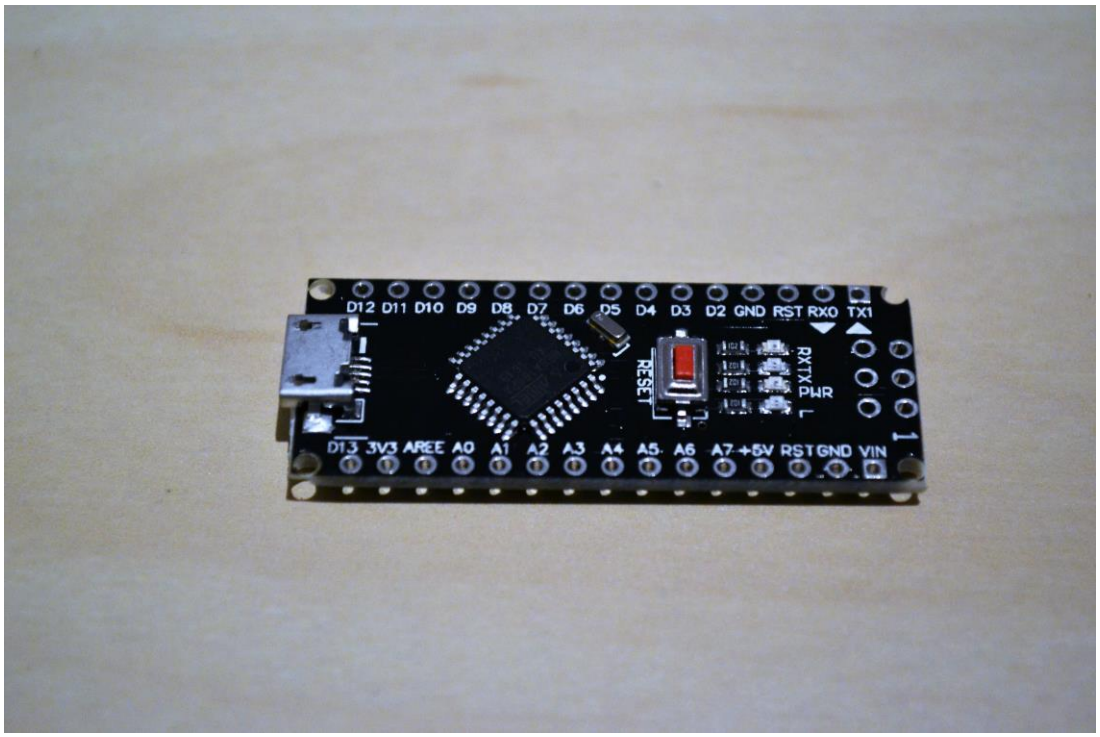
TM1638



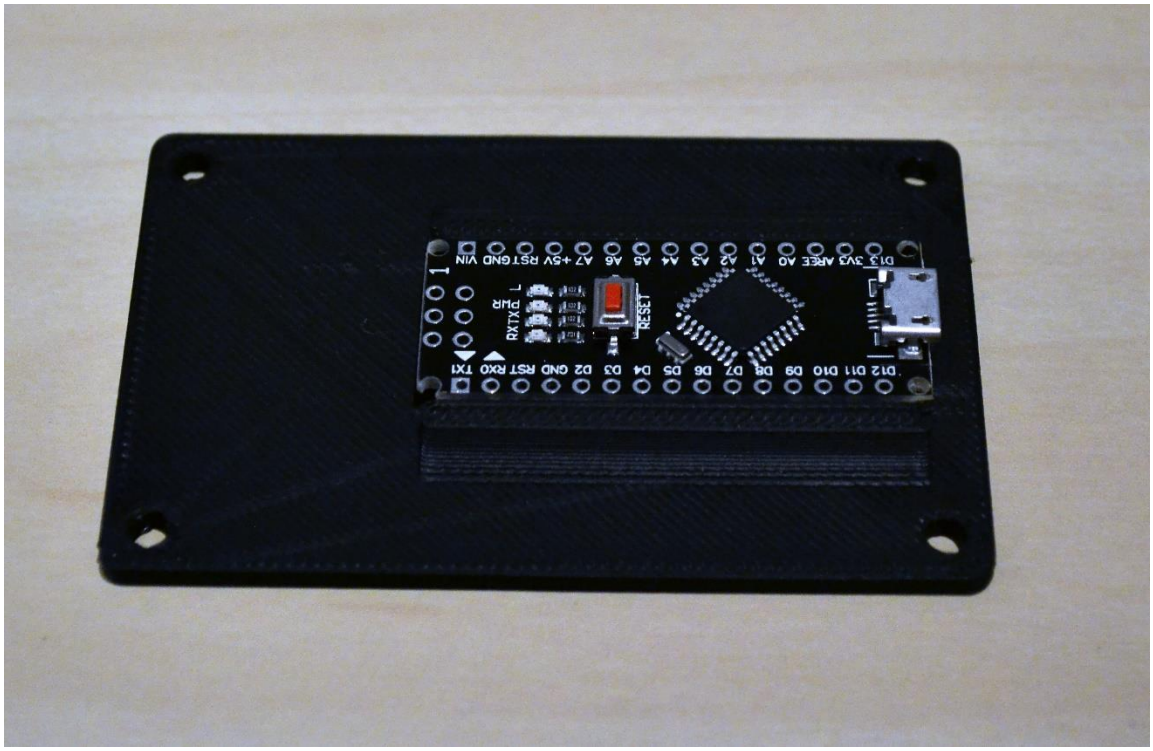
MAX7219



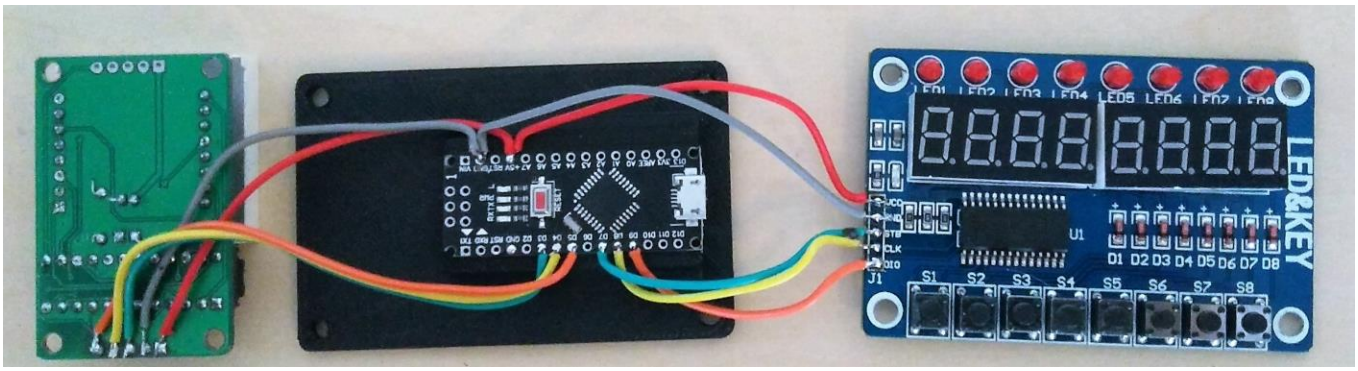
Arduino Nano168P

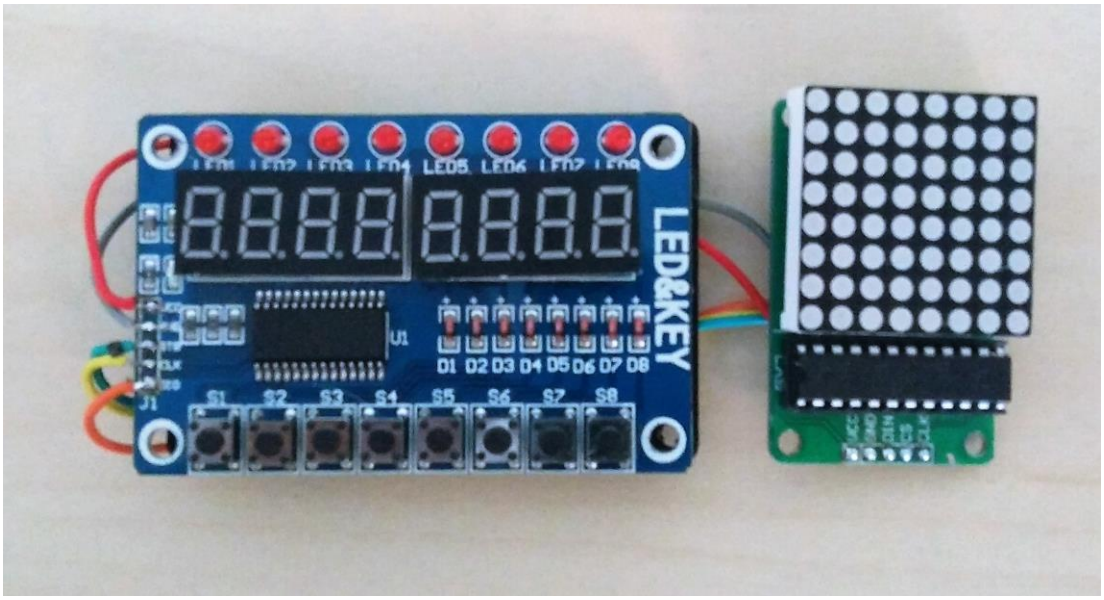


Se monteaza placa de dezvoltare Arduino Nano pe suport-ul din Kit, cu mufa Micro USB spre exterior. Aceasta se clipseaza in pozitie folosind putina forta.

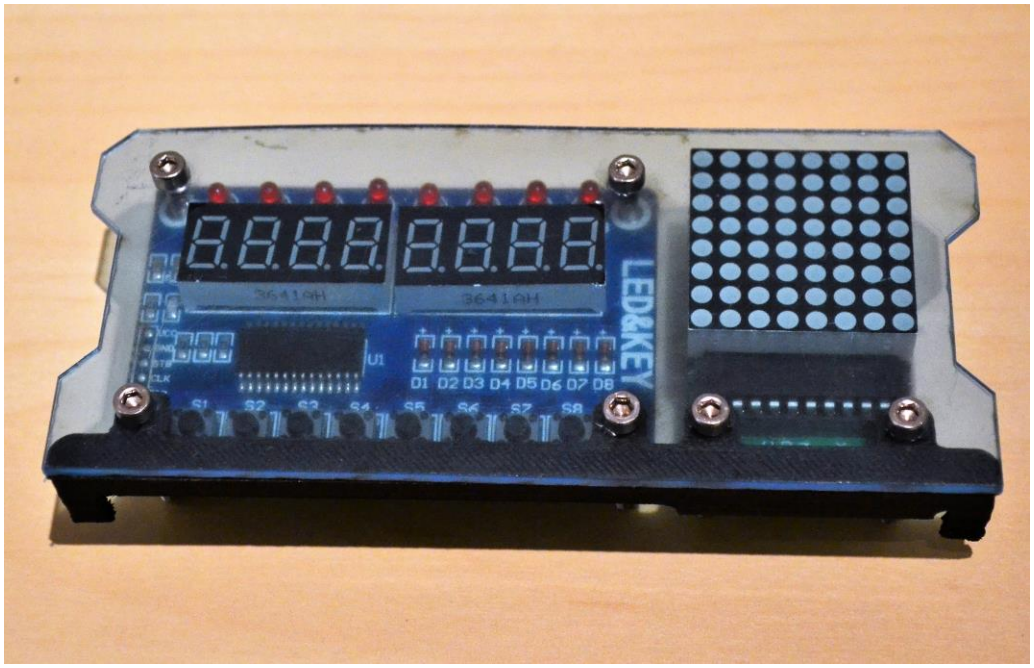


Pentru usurinta se recomanda cositorirea firelor direct in gaurile placii Arduino Nano.



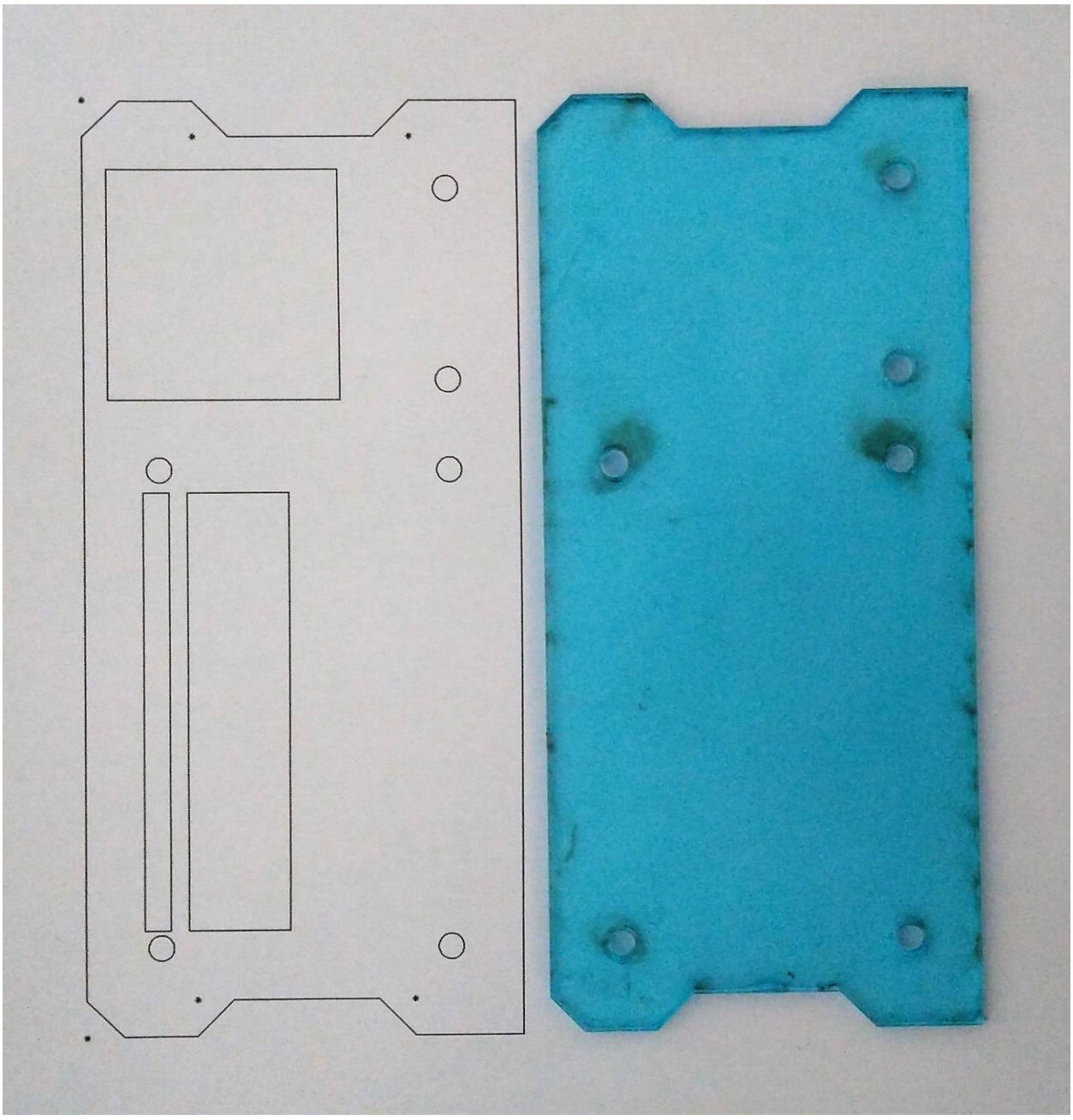


Se testeaza ansamblul pentru a vedea daca ajung firele, daca totul se aliniaza conform cerintelor.

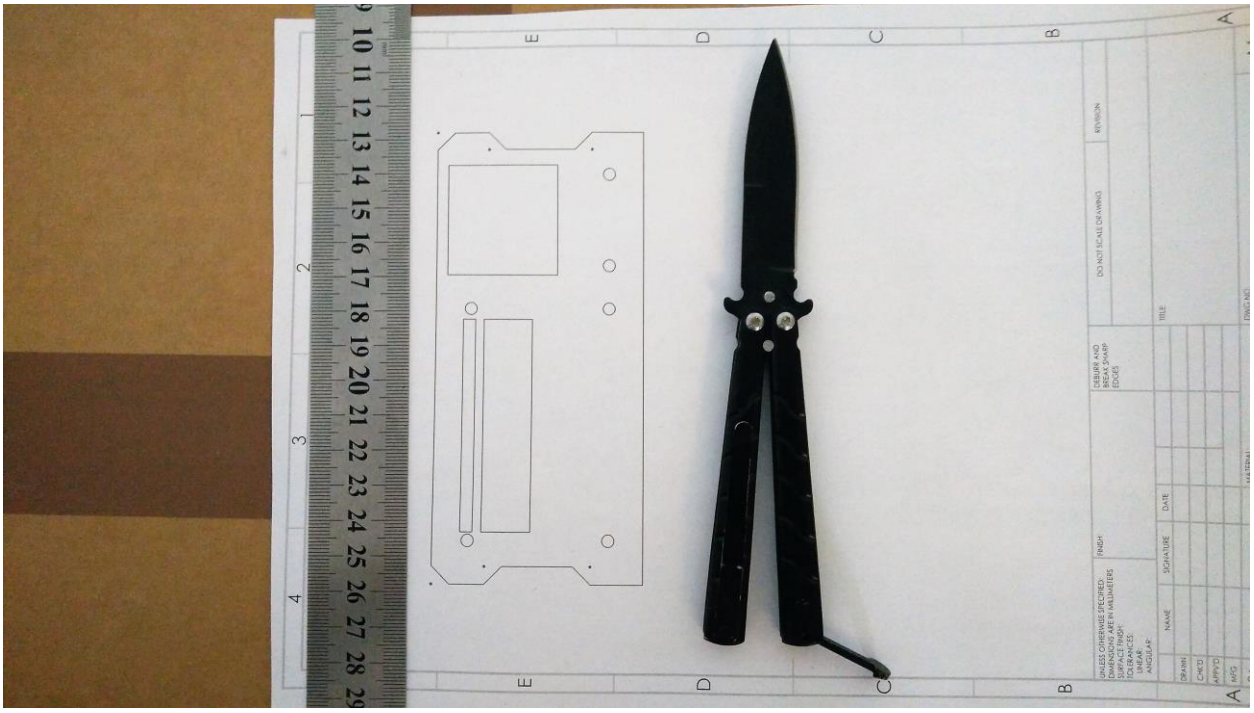


PASUL 3 – Folie Carbon (OPTIONAL)

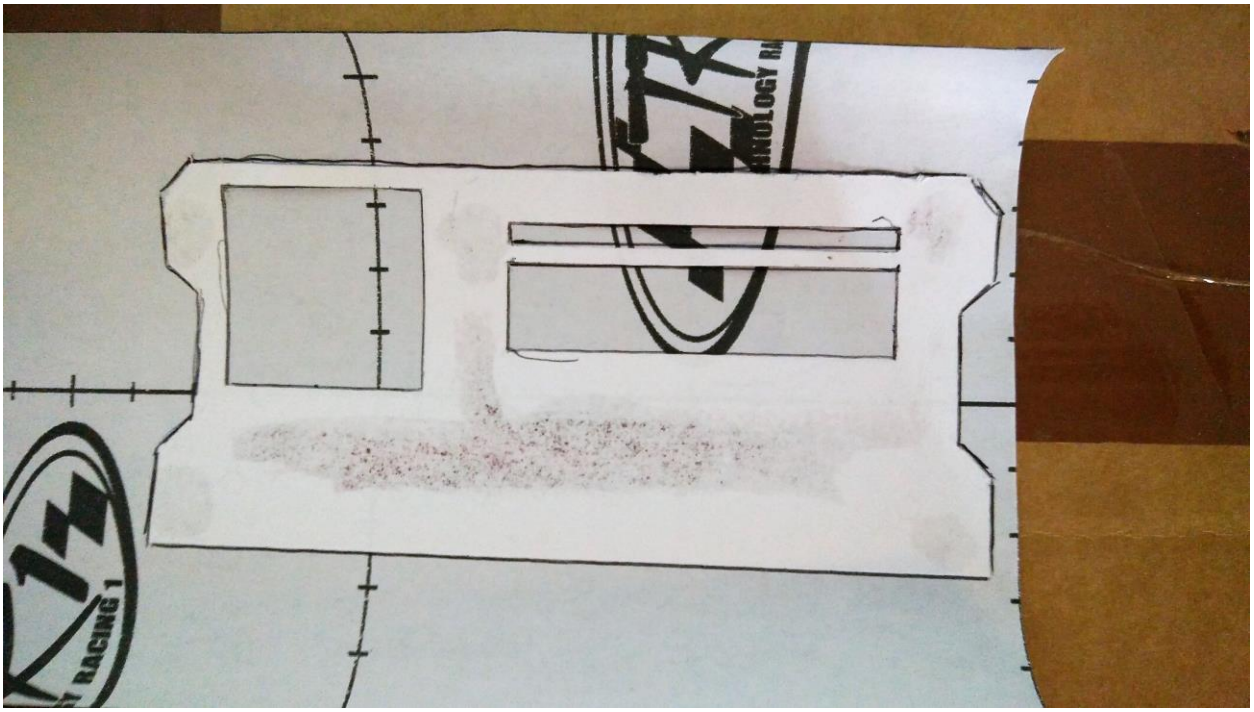
- Se imprima desenul PDF atasat, folosind scara 1:1 .



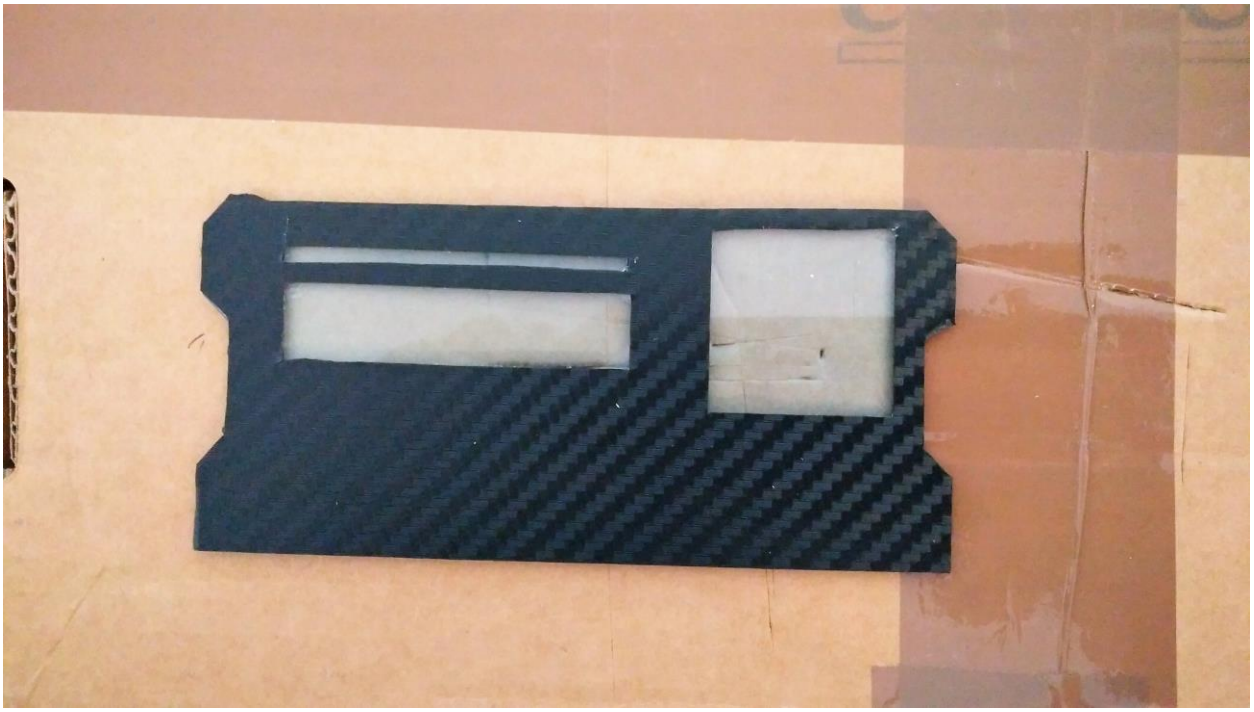
- folosind o rigla metalica si o lama de precizie (sau un cutit foarte bine ascutit) , se taie conturul imprimat si se decupeaza dreptunghiurile din interior. Daca aveti acces la un cutter plotter, desenele in format DXF vor fi disponibile in sectiunea resurse.



- Se transfera desenul IN OGLINDA pe spatele foliei cu fibra de carbon.



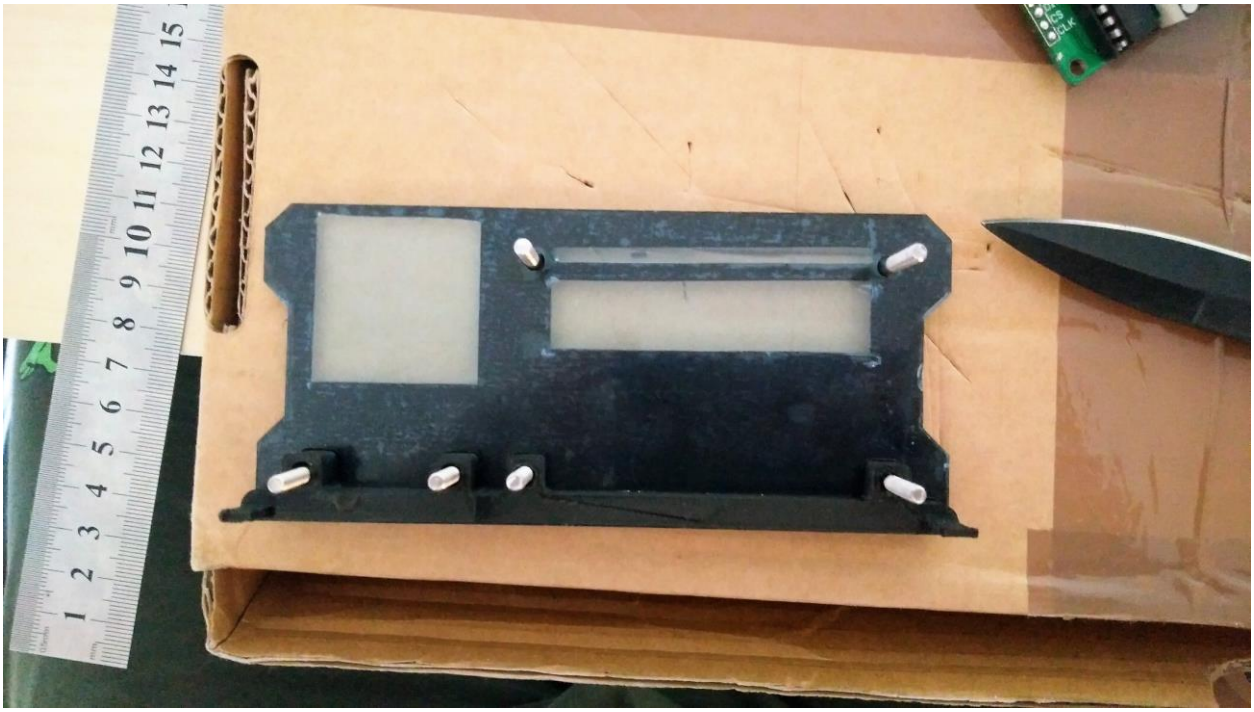
- Se taie folosind cutter-ul si rigla forma dorita



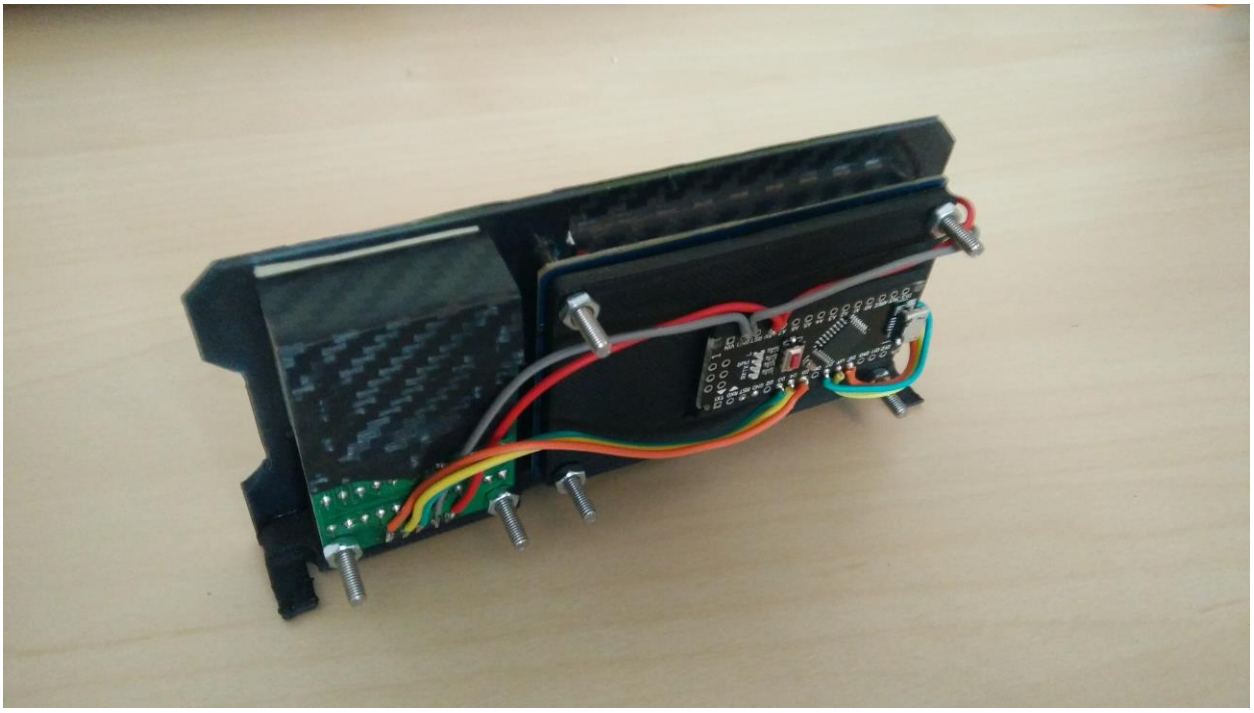
- se recomanda utilizarea unei suprafete neimportante pentru taiere, in imagine puteti vedea o cutie pentru a proteja masa de eventualele zgarieturi pe care le poate face lama de precizie.

- se lipeste folia pe panoul de plexiglass si se curata eventualele imperfectiuni ramase in urma taierii:

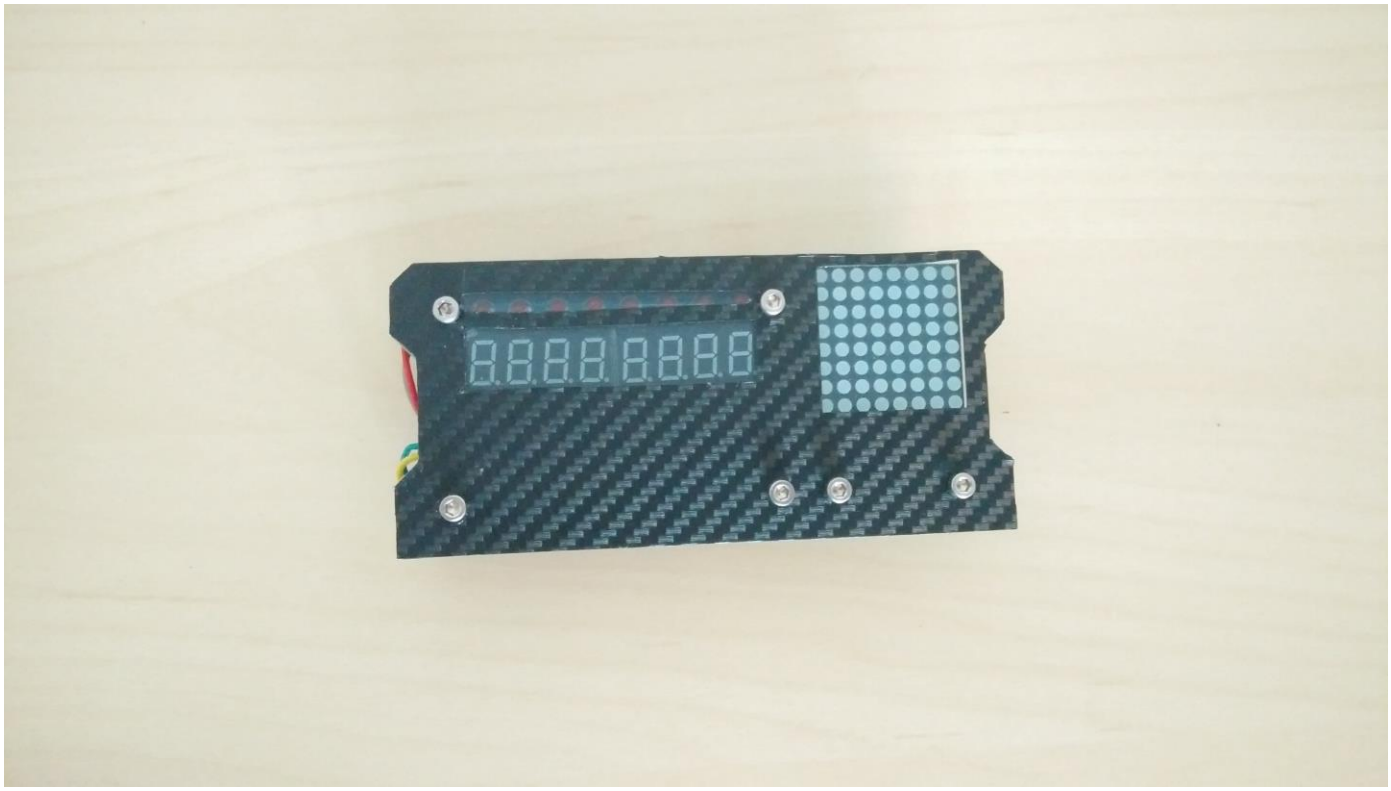
- Se inteapa gaurile pentru suruburi si se introduc suruburile in gaurile lor. Se adauga stand-ul imprimat 3D peste acestea:



- Se monteaza modulul Keypad, Matrix si Arduino Nano pe panou utilizand suruburile si piulitele necesare (6 buc M3x25 si 6 buc piulite). Se adauga folie carbon in zonele cu pini expusi pentru a preveni eventualele scurt-uri nedorite.

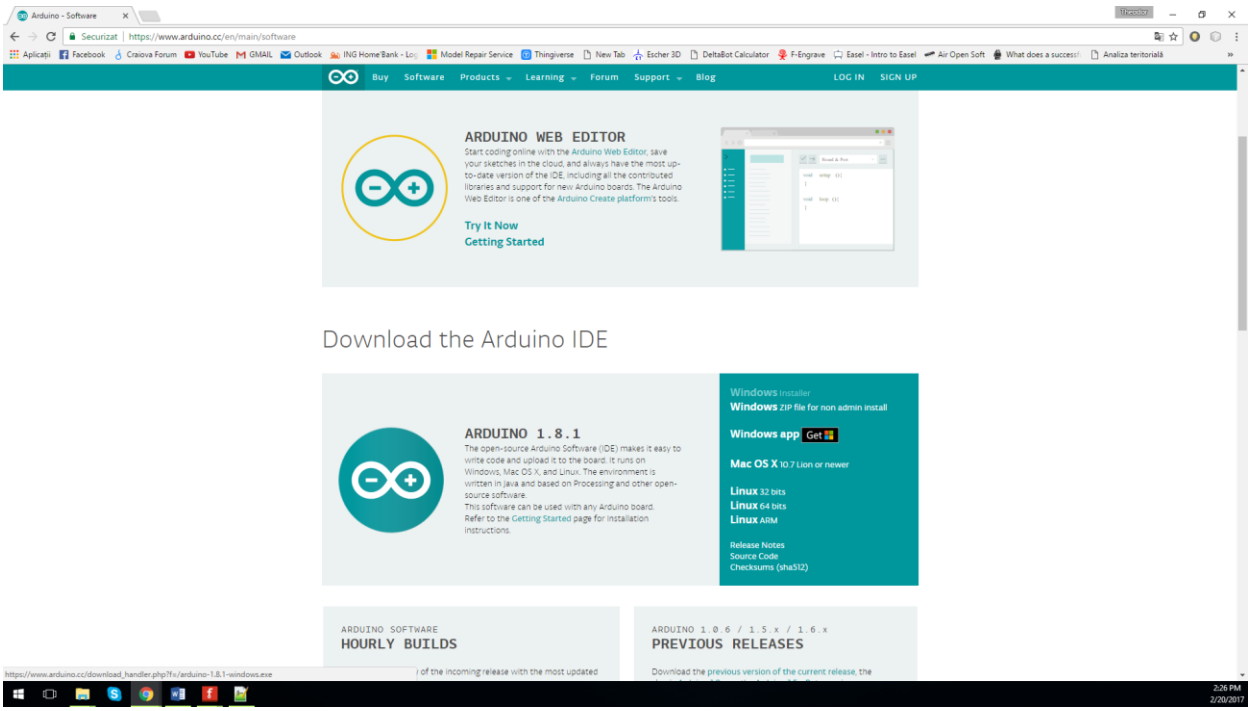


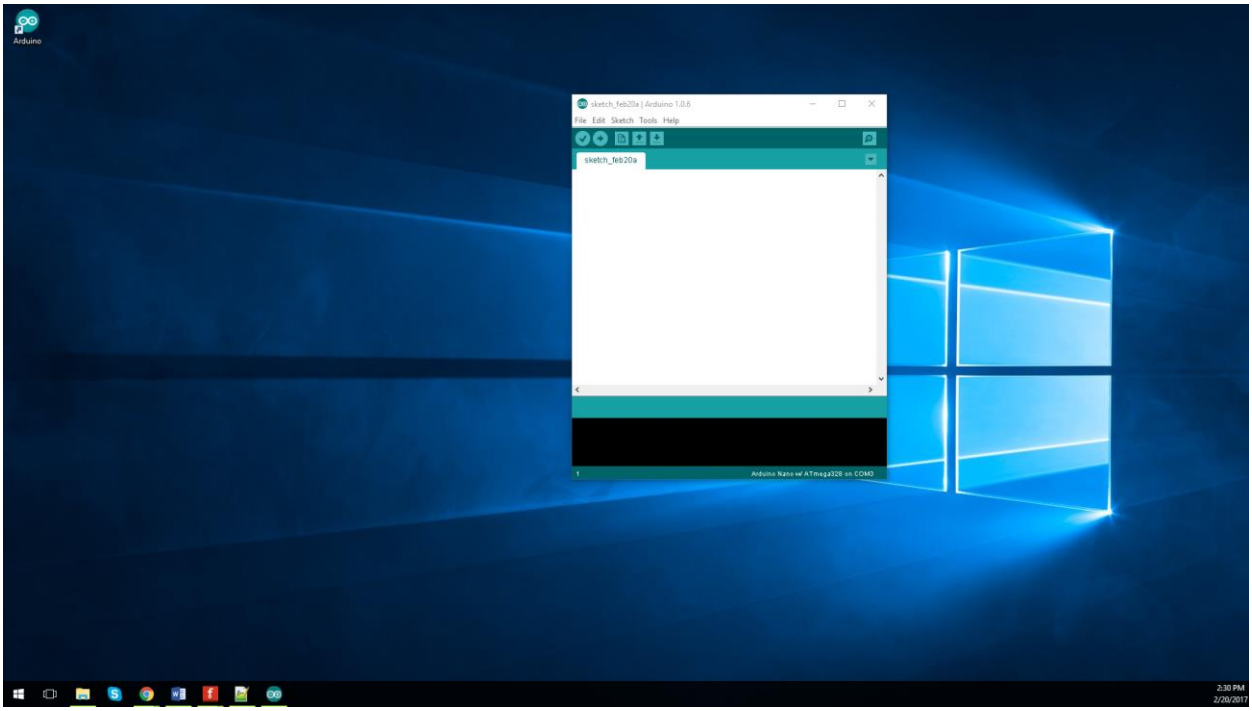
- In final, proiectul va arata asa :



PASUL 4 – Software

- Se instaleaza ultima versiune de Arduino IDE: https://www.arduino.cc/en/main/software

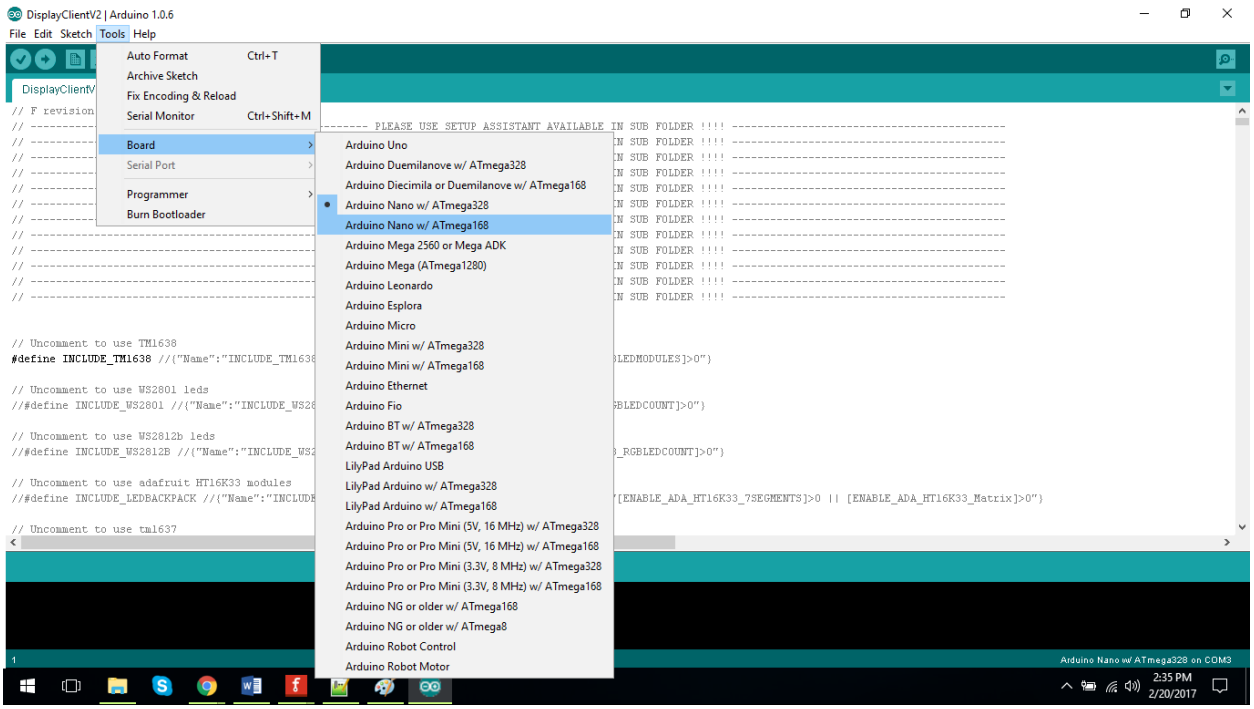


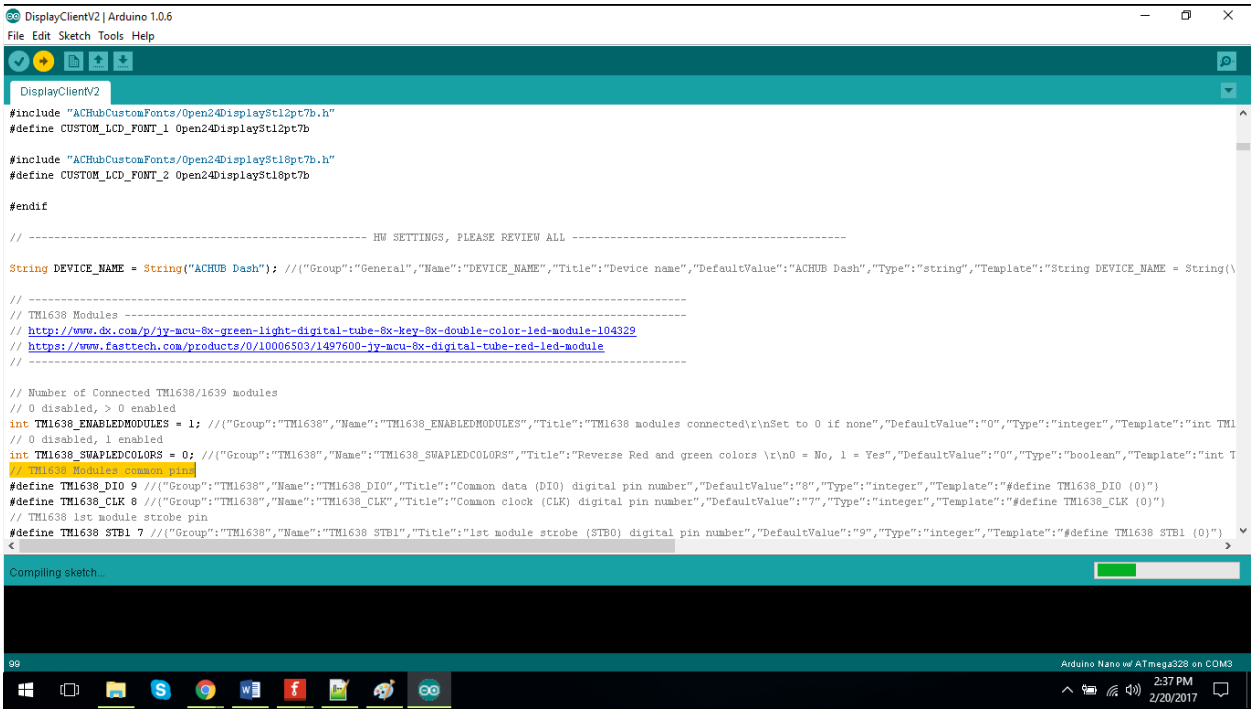


- Se instaleaza librariile necesare din locatia : Racing Simulator DIY Dash > Libraries .
  Acestea se copiaza in <<Arduino Install Folder>> > Libraries

- Se deschide codul sursa din locatia : Racing Simulator DIY Dash > Code > DisplayClientV2 > DisplayClientV2.ino

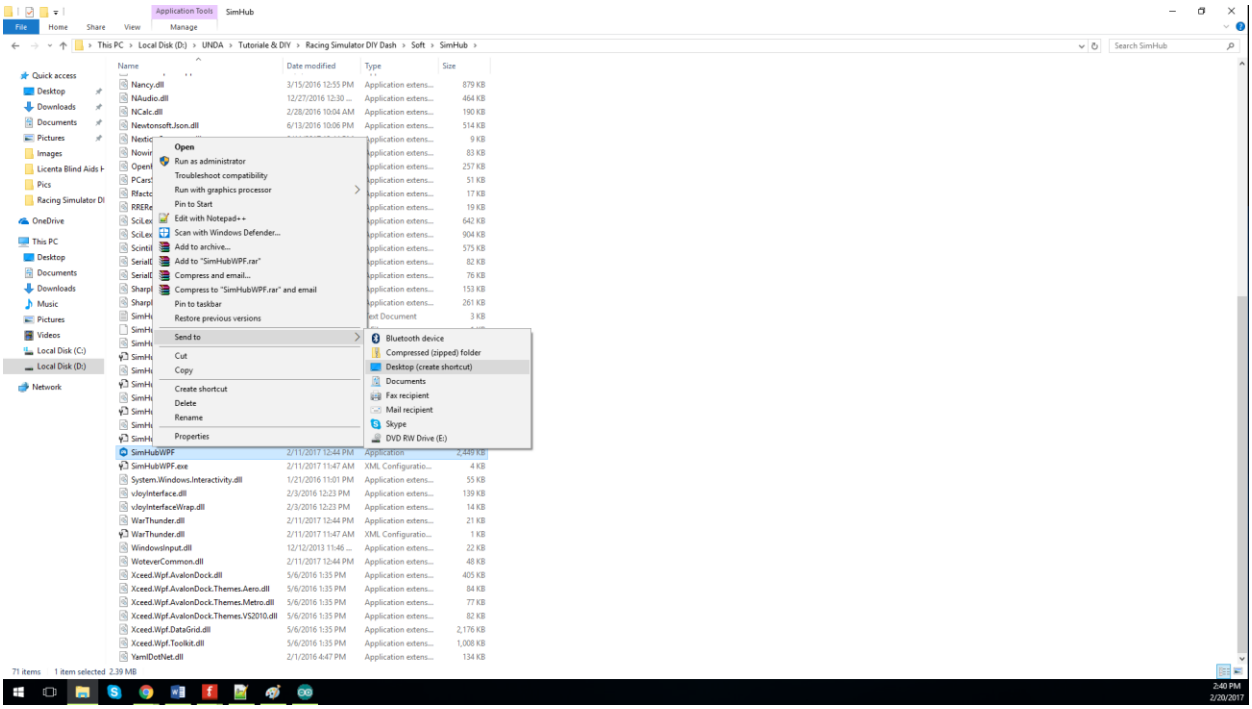
- Se selecteaza Arduino Nano168P (sau, in cazul folosirii unui arduino Nano328P, se selecteaza acesta) , port-ul la care se poate vedea placa de dezvoltare si se apasa butonul Upload



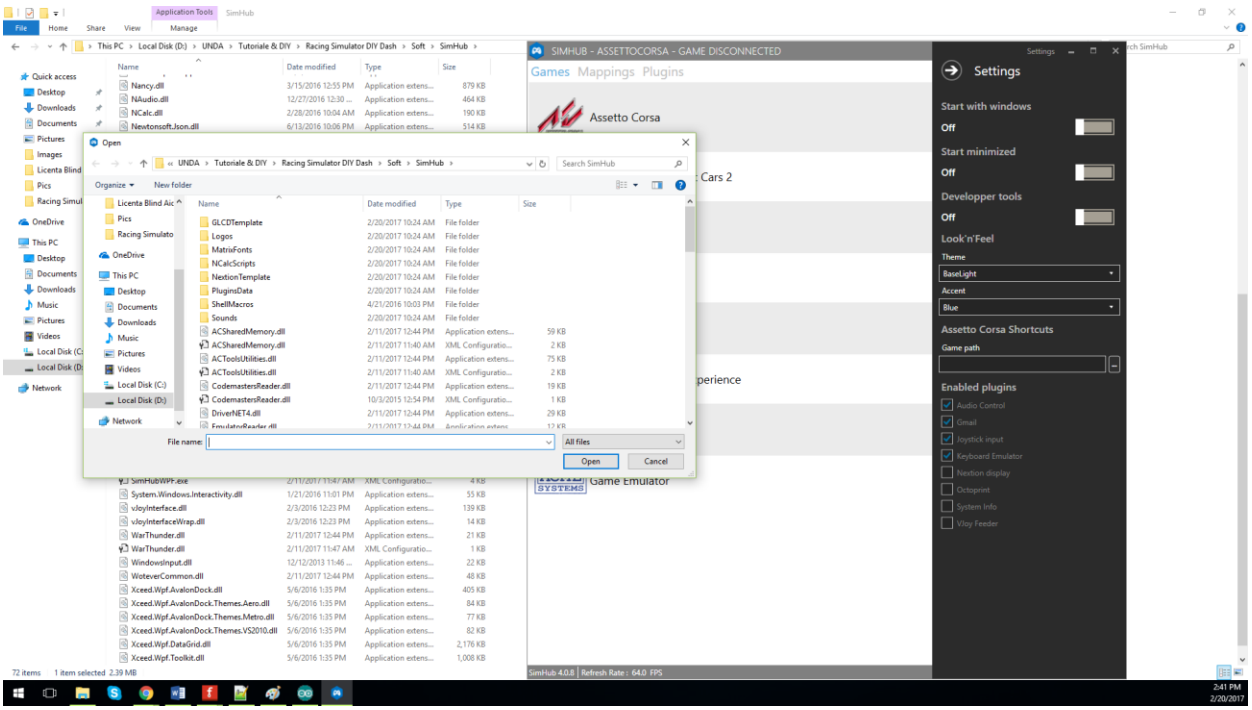


- Dupa incarcarea codului, trebuie configurat programul SimHub.

In locatia Racing Simulator DIY Dash > Soft > SimHub se regaseste aplicatia dorita. Folderul SimHub se muta undeva in memorie la o locatie cunoscuta , dupa care se creeaza un shortcut catre SimHub.exe

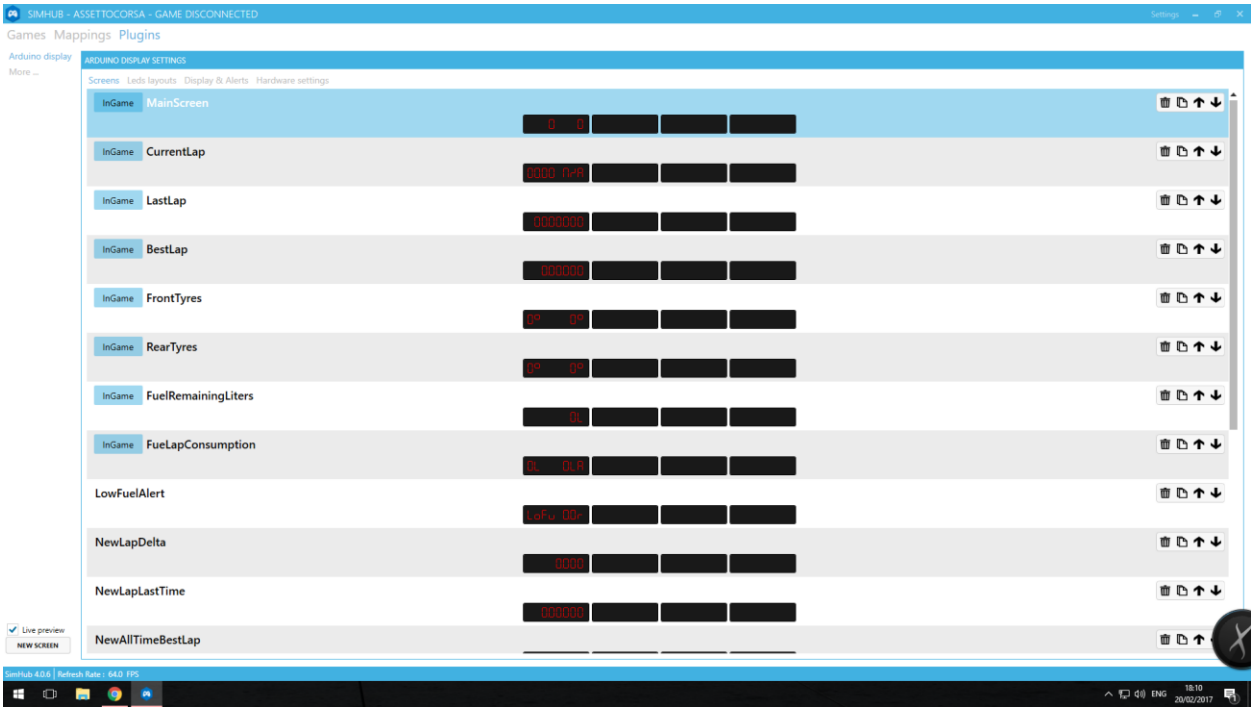


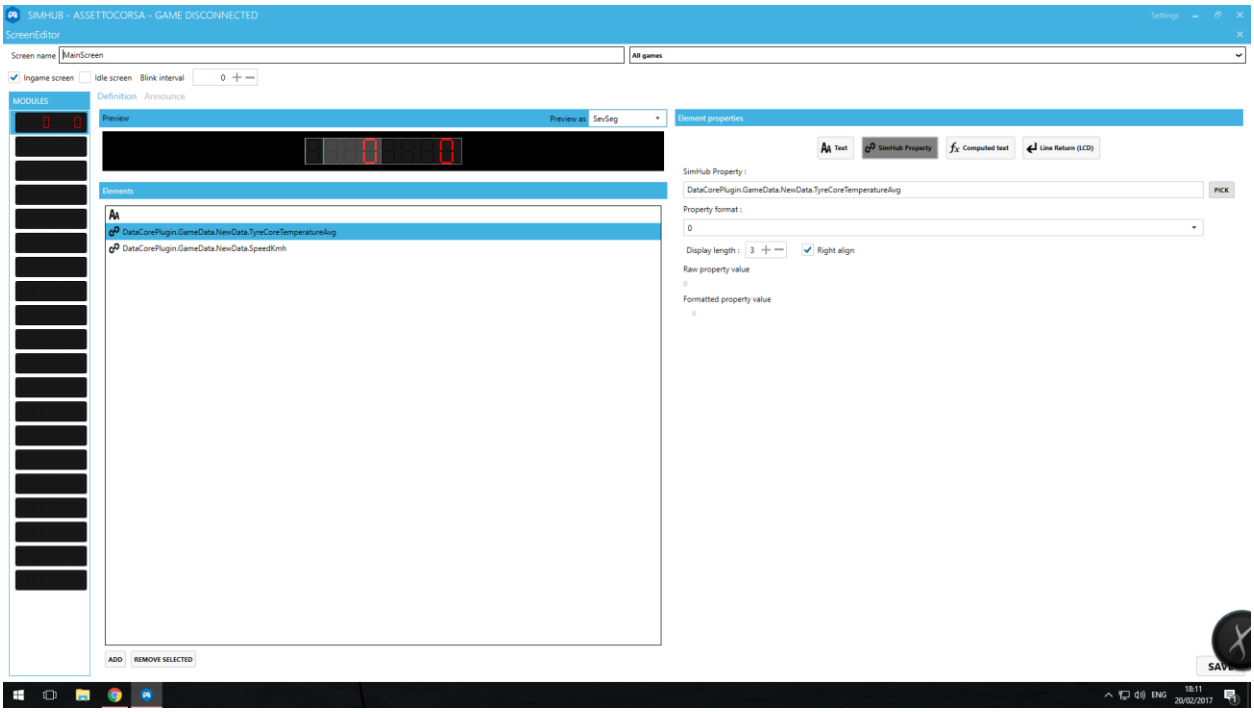
Se deschide SimHubWPF si se selecteaza locatiile de instalare pentru jocurile dorite din meniul Settings



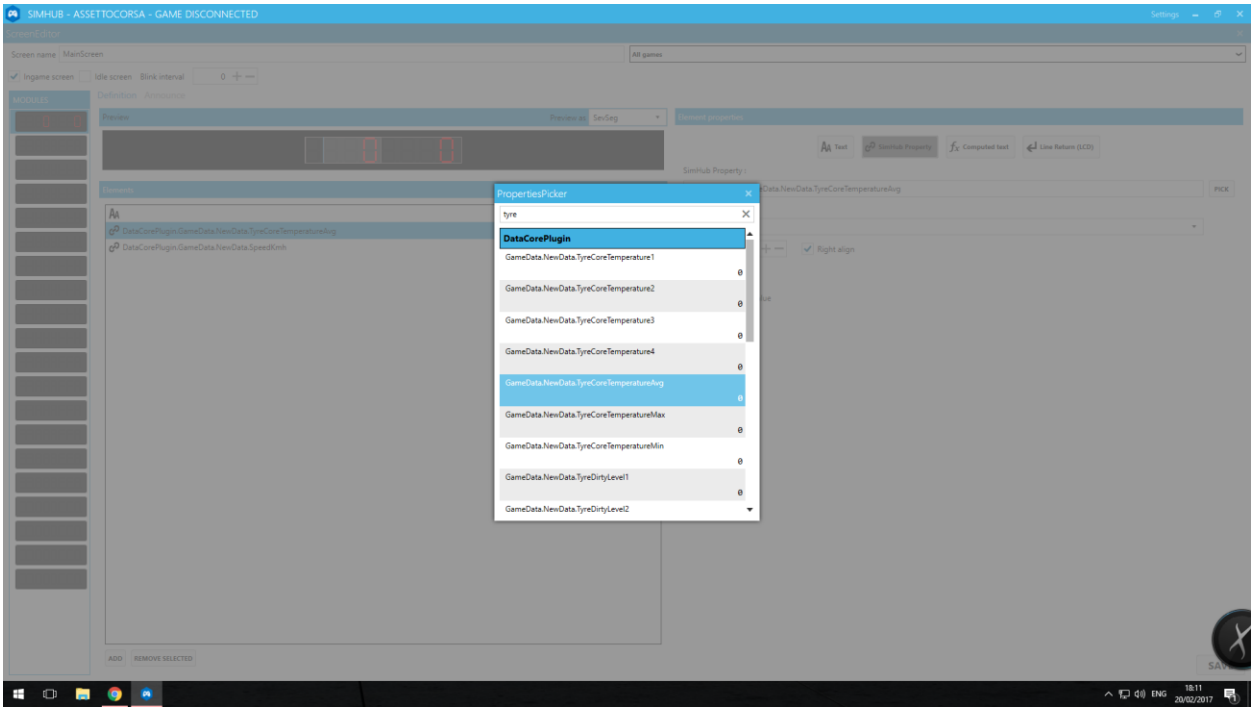
- dupa ce ati selectat destinatia jocului, urmeaza configurarea display-ului cu ajutorul aplicatiei SimHub

- Mergem in meniul Plugins > Screens si selectam Main Screen

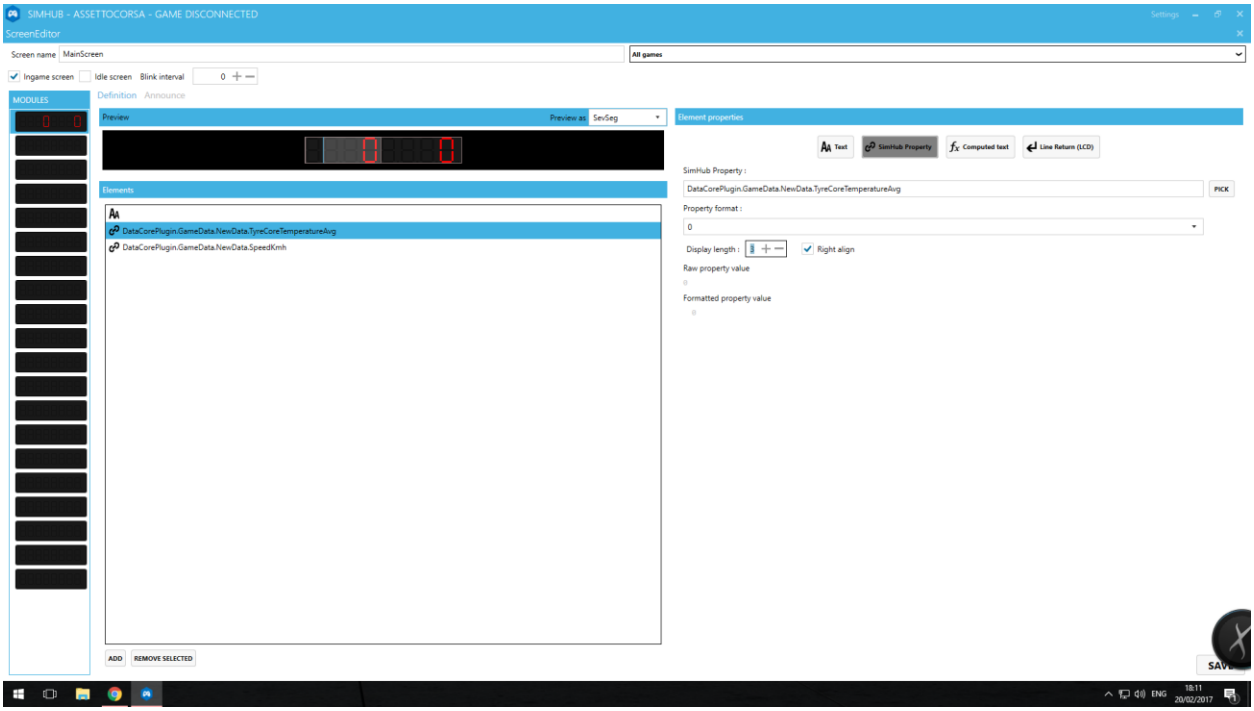




- In meniul curent selectam optiunea Elementul 1 (nu cel care ne da viteza) si alegem optiunea Pick

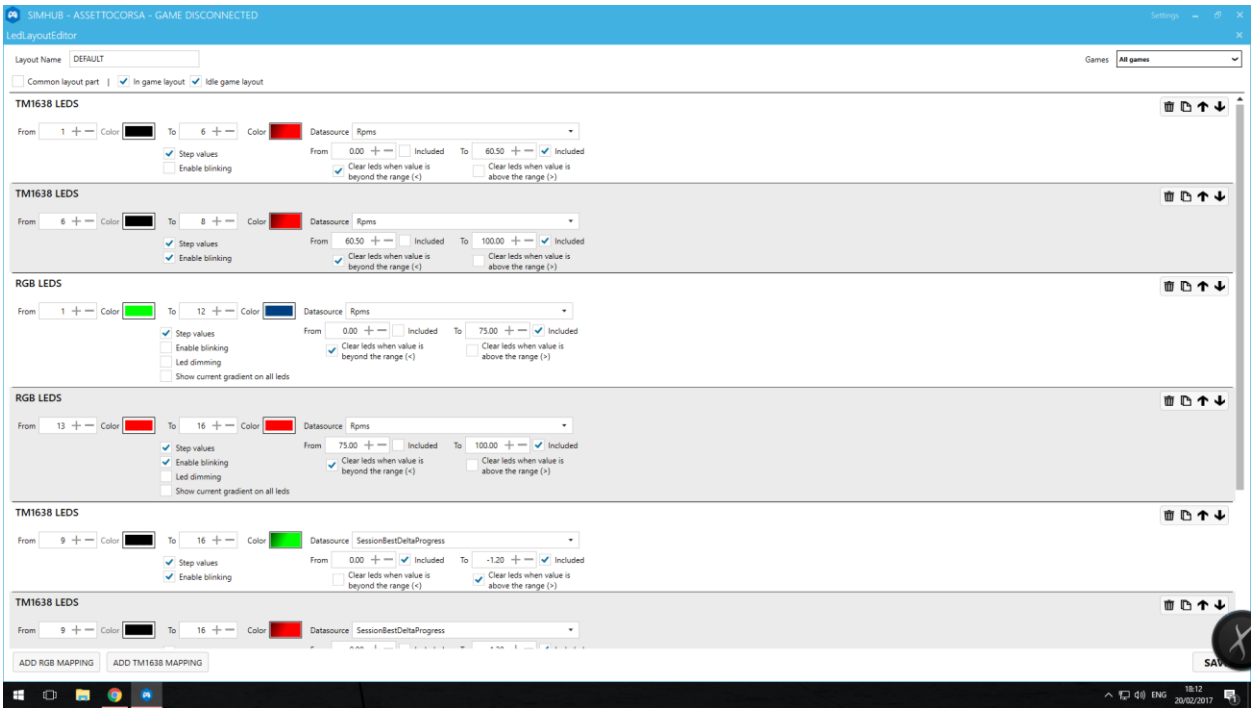


- Selectam GameData.NewData.TyreCoreTemperatureAvg



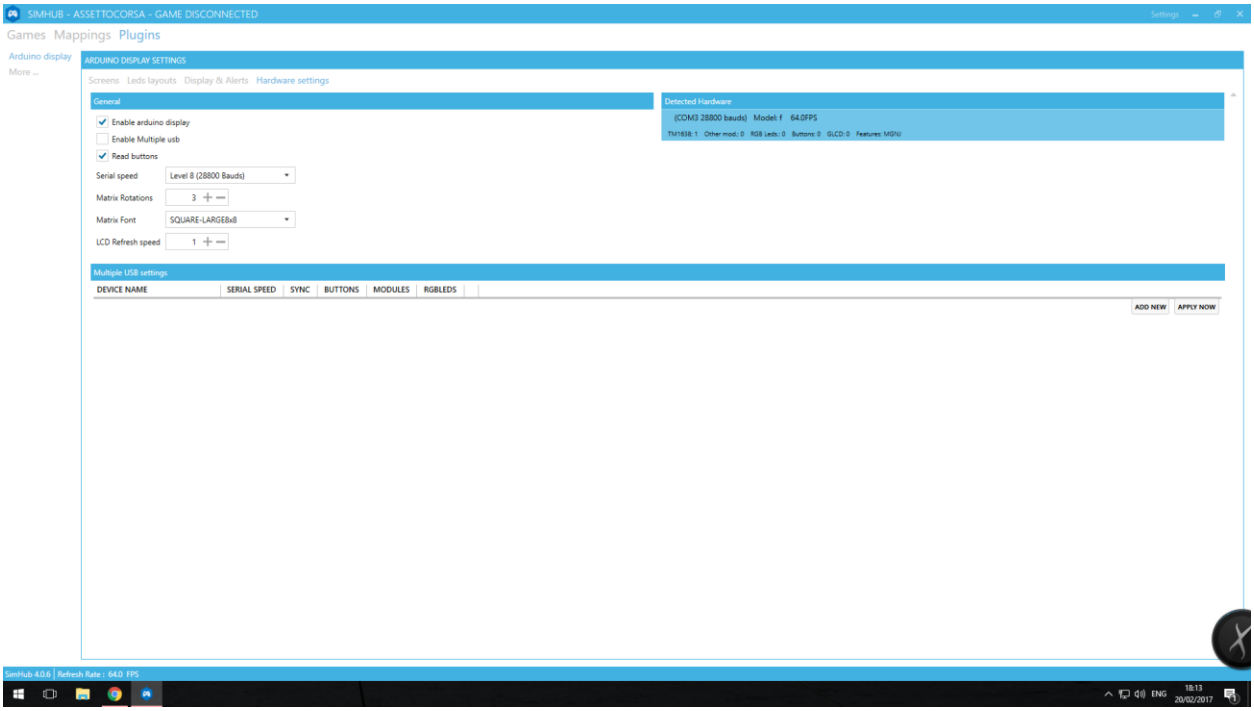
Mai departe vom configura layout-ul pentru Ledurile care reprezinta Turatia motorului

Mergem in meniul Plugins > Led Layout si actualizam setarile dupa urmatoarele imagini:



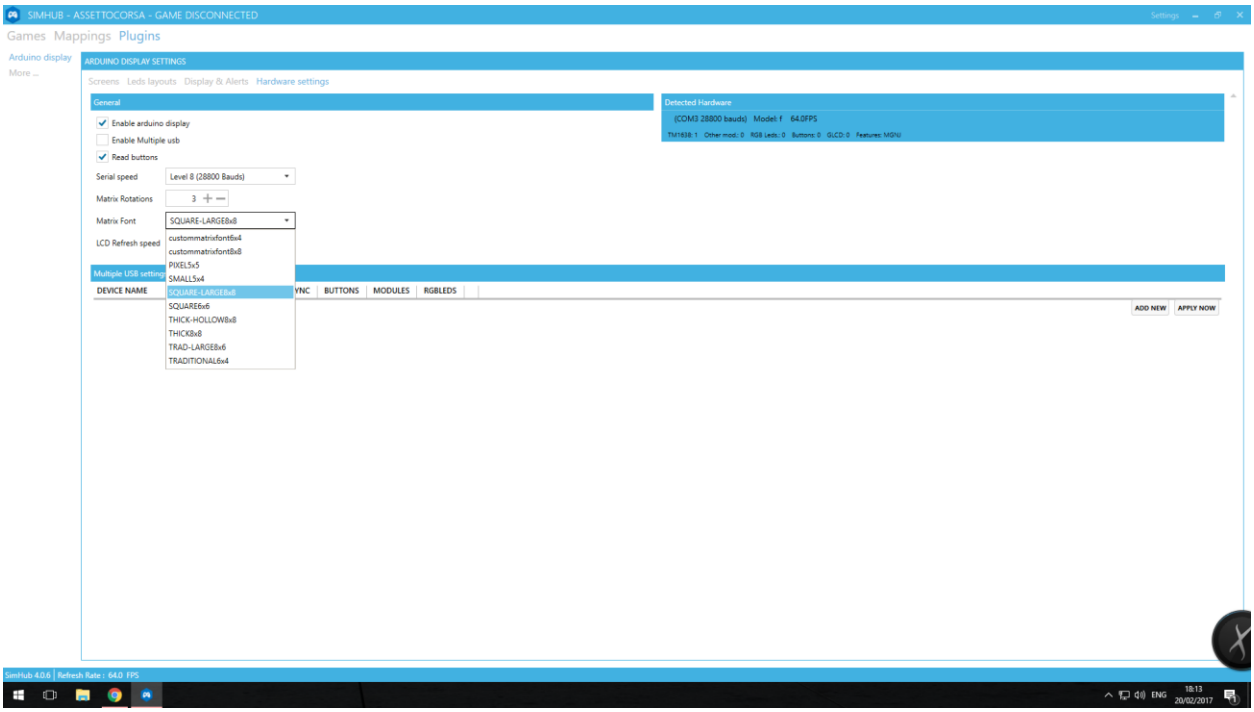
In ultima parte vom configura matricea de leduri pentru a ne arata treapta de viteza. Pentru acest lucru mergem in meniul Hardware Settings

Aici putem observa conexiunea cu Dash Board-ul nostru, COM-ul atribuit acestuia si Baudrate-ul de comunicare.



Selectam Matrix Font si alegem Squere Large 8x8

Ne asiguram ca valoarea Matrix Rotations este 3, pentru a nu avea afisajul rotit .



In final selectam Apply Now pentru a salva modificarile facute.

Acum putem da Start Game din meniul SimHub pentru a initializa afisajul.
ATENTIE! Afisajul va functiona numai daca jocul va fi pornit din meniul SimHub.

Acestea fiind spuse, ghidul nostru a ajuns la sfarsit!
Pentru intrebari/sugestii nu ezitati sa ne contactati!