

## Department of Computer Science and Engineering

Course Code: CSE238	Credits: 1.5
Course Name: Microprocessor & Interfacing Lab	Faculty: FRS

### Marks Distribution:

Attendance	10%
Lab Exams	20%
Project	30%
Assignments + Class Performance + Viva	10% + 20% + 10%

### Demo Projects:

#### 1. Automated Greenhouse:

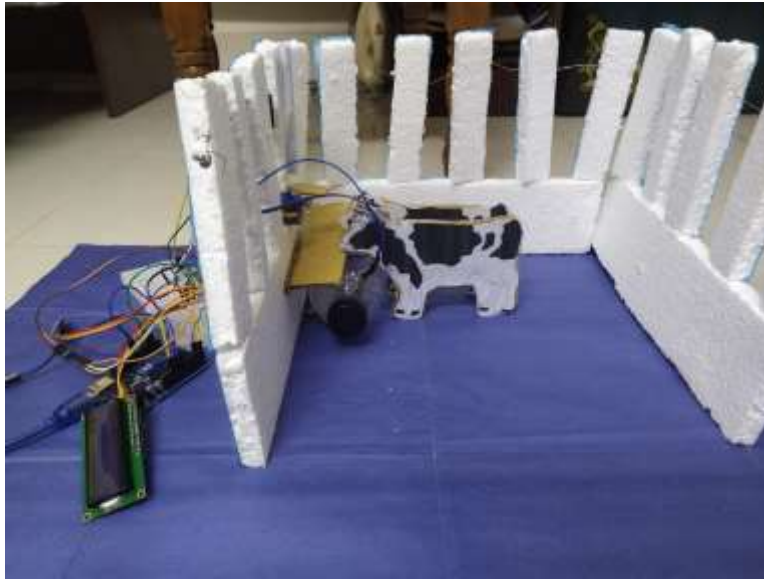


#### Key Features:

- Temperature and Humidity Control
- Monitoring Soil Moisture levels
- Watering System
- Water Reserving System
- Fire Detection
- Alarming System in a hostile environment

- Light Control System
- Solar Panel
- Motion Detection for Security

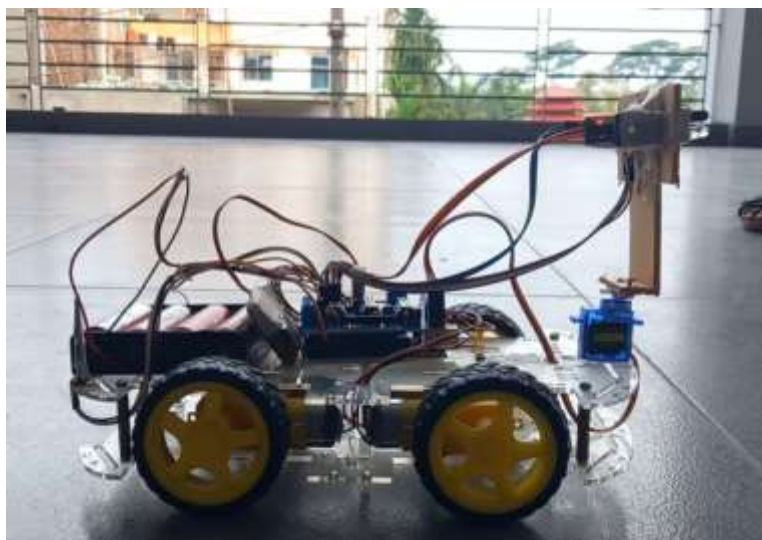
## 2. Pet Farm Management System:



### Key Features:

- Automated Feeding System
- Watering System
- Temperature Monitoring
- Lighting Control

## 3. Human Following Robots:



#### Key Features:

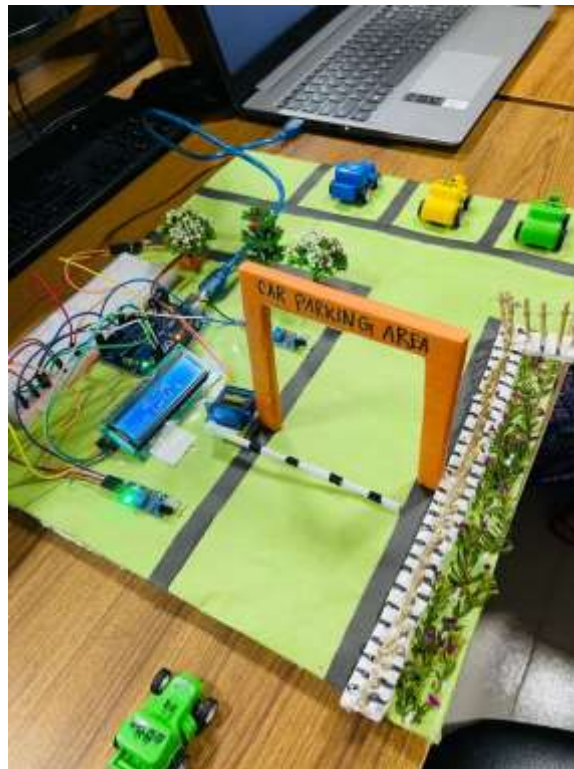
- To able to control using gestures. It will follow like puppy
- To control the manual mode it can run smooth as much as you want
- To use IR sensors to detect the human movement and obstacle
- To use a servo motor to rotate it for adjust direction
- Have the custom build app feature
- By using app you can control your vehicle
- It also have the obstacle avoiding feature

#### 4. Visitor Triggered Power Management System

##### Key Features:

- Counts the number of visitors
- Voice control Power System
- Automatically turns on power within the presence of visitors
- Automatically turns off power within the absence of visitors
- Display total power consumption

#### 7. Smart Parking System



## 8. Automatic fire fighting Robot



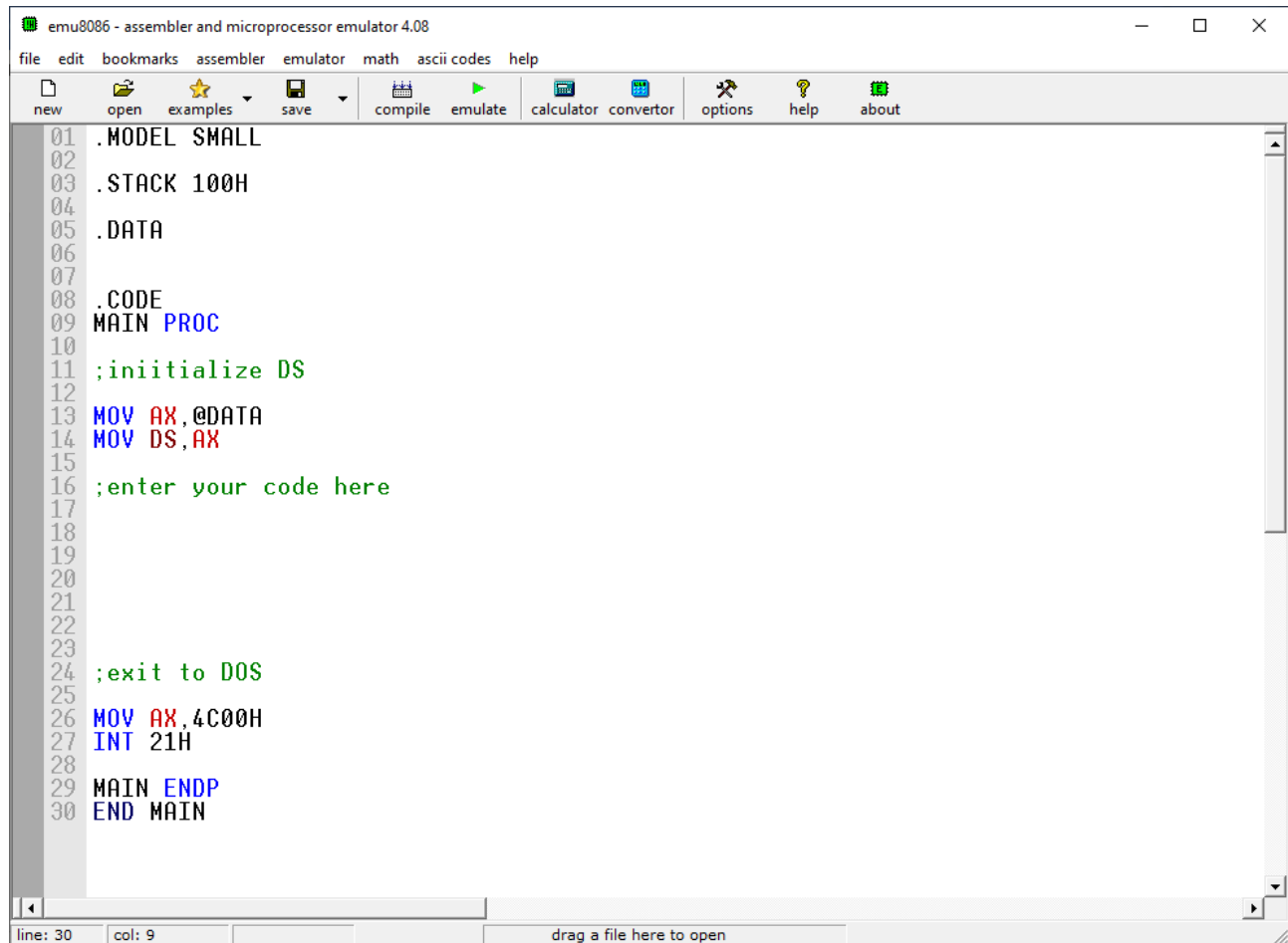
## 9. Air defense system



## 5. CNC Plotter Machine: An Arduino controlled CNC (Computer Numerical Control)

## 6. RFID card-based attendance system

## EMU8086 Software:



## Important Features:



## Ascii Codes:

ascii codes																— □ ✕															
00: null	20: spa	40: @	60: `	80: Ç	A0: á	C0: 	E0: α	01: �	21: !	41: A	61: a	81: �	A1: �	C1: 	E1: �	02: �	22: " ' "														

## Converter:

base convertor

☒ 8 bit ☐ 16 bit

hex: 0

signed unsigned

dec: 0 0

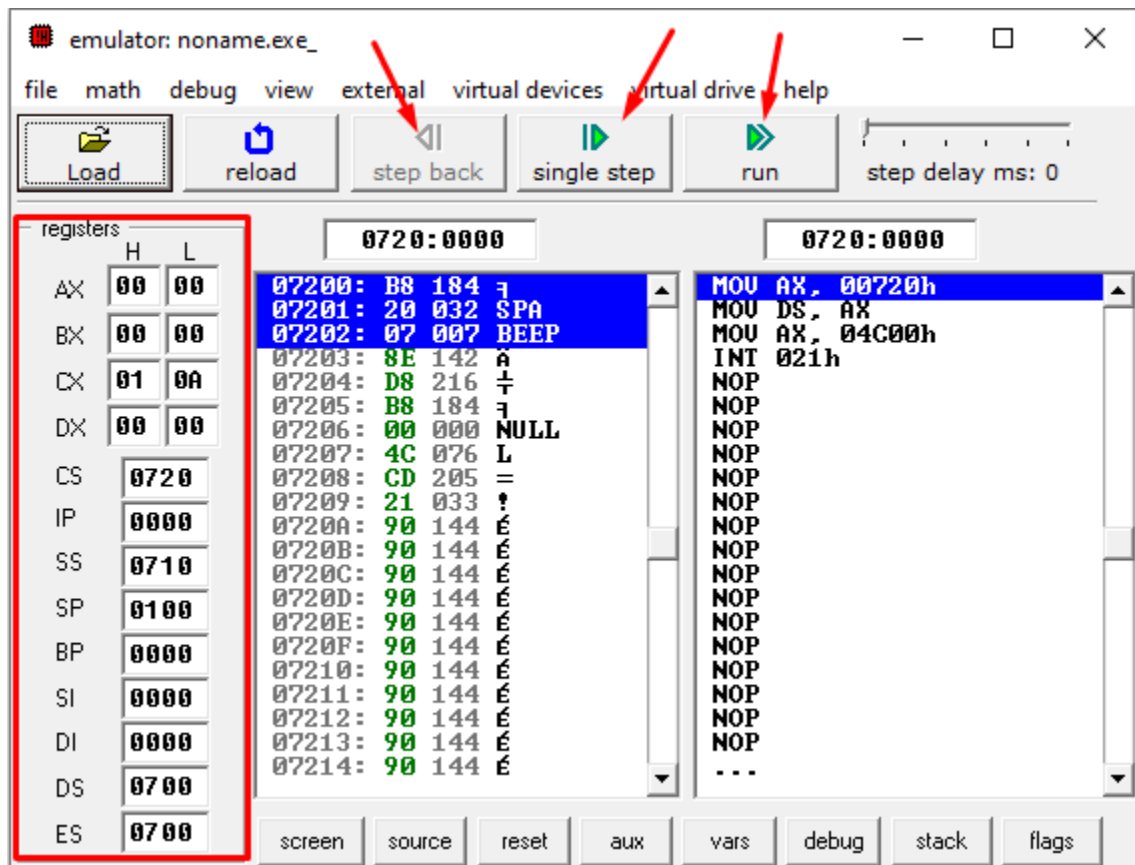
ascii char:

oct: 0

bin: 00000000

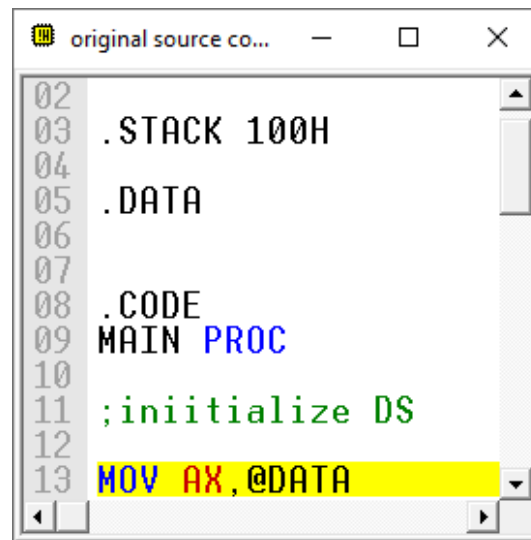
- We can use this feature to convert our numerical values from one number system to another. Depending on the size of the value, we can also choose between an 8-bit or 16-bit number for the hexadecimal numbering system.

**Emulate:** By clicking on the emulate button these two windows will pop up.



- Here on the left side, you can see all the register values. They will keep updating as the program executes.
- Using the run button, we can execute our whole program all at once.
- Using the single-step button, we can execute our program line by line. We will use this button so we can see the changes in the values after executing each line.
- The step-back button is used to take a step back.





```
02
03 .STACK 100H
04
05 .DATA
06
07
08 .CODE
09 MAIN PROC
10
11 ;iniitalize DS
12
13 MOV AX,@DATA
```

- Here yellow line indicates which line will be executing next.



## Code Template

```
.MODEL SMALL

.STACK 100H

.DATA

.CODE
MAIN PROC

;iniitalize DS

MOV AX,@DATA
MOV DS,AX

;enter your code here


;exit to DOS

MOV AX,4C00H
INT 21H

MAIN ENDP
END MAIN
```