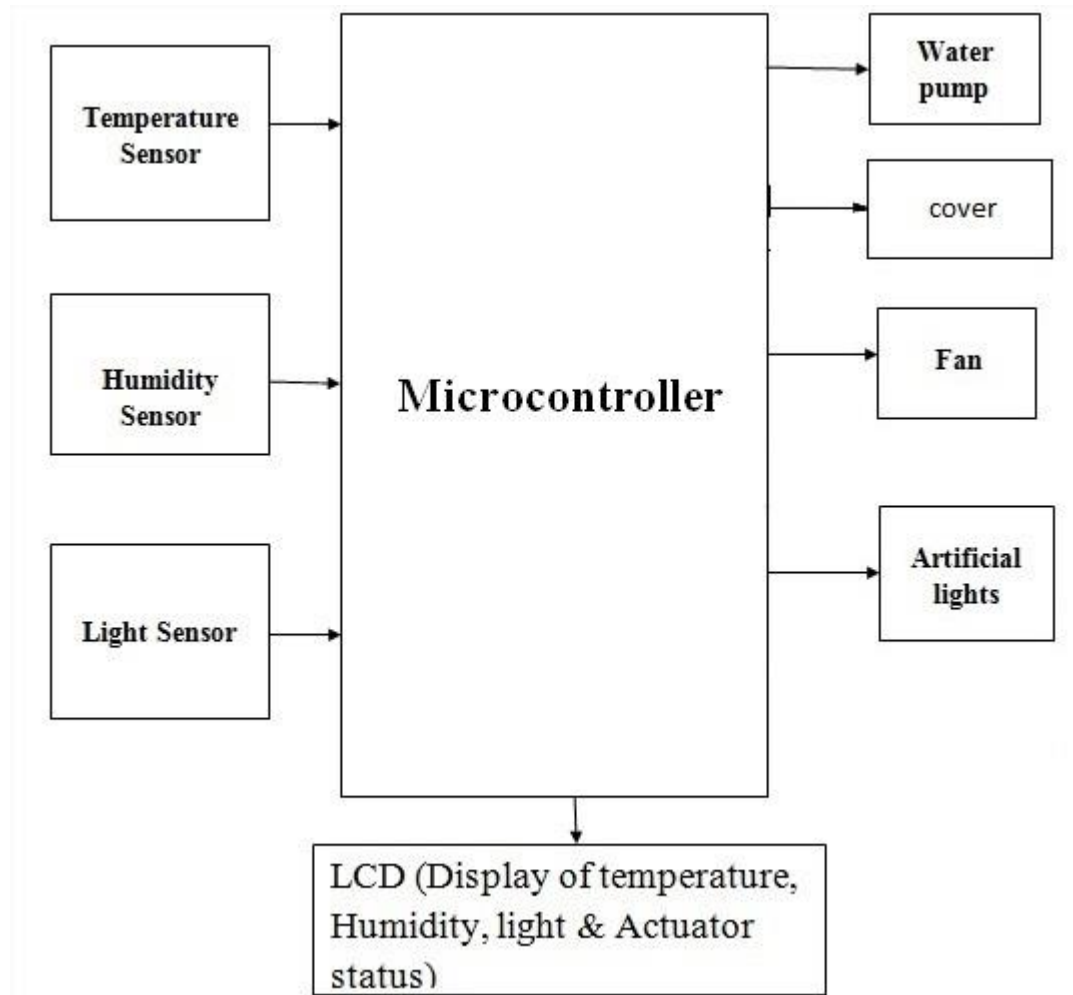


# Green house control (GHC)

## H/W Design:

- Block Diagram of the hardware.



## S/W Design:

- **Static Design:**

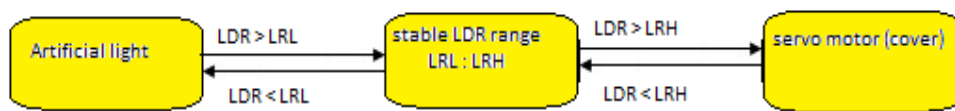
- S/W Components

LCD, LED (Artificial light), Light sensor (ADC), temperature and humidity(i2C), servo motor, DC motor, stepper motor.

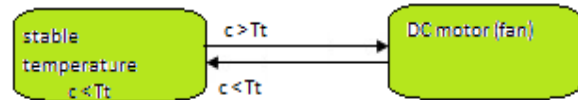
- S'W: Architecture.

Layering diagram.

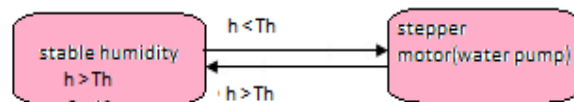
- **Dynamic Design:**
  - State Machine



LDR : 60    LED : OFF  
servo angle : 0



c : 50    fan : OFF  
Tt : 60



h : 70    water pump : OFF  
Th : 40

## Component Design:

System parameters

System branch:

(LDR, Temperature, humidity)

LDR – current light intensity

(LRL: LRH) -stable range

LED -Artificial light

Sev\_angle- servo motor cover

c- current temperature

Tt- threshold temperature

Mot\_fan – Dc motor (fan)

h-humidity reading

Th- humidity threshold

Mot\_pump- stepper motor (water pump)

**Initialization {**

```
Write LDR stable range (LRL: LRH)
Write threshold temperature (Tt)
Write threshold humidity (Th)
}
```

**LDR Branch {**

```
Read LDR value from LDR sensor
If (LDR value < LRL value)
{
    LED ON
}
Else {LED OFF}
```

```
If (LDR value > LRH value)
{
    Sev_angle=90
}
Else { Sev_angle = 0 }
}
```

**Temperature Branch {**

```
    Read c temperature from temperature sensor
    If (c > Tt) { Mot_fan= ON }

    Else { Mot_fan =OFF}
```

```
}
```

**Humidity Branch {**

```
Read humidity from humidity sensor (h)
If (h < Th) { Mot_pump =ON }
Else { Mot_pump =OFF}
```

```
}
```

```
Display {
```

```
    LCD display LDR branch
    Count(500)=(500ms)
    LCD display temperature branch
    Count(500)=(500ms)
    display humidity branch
    Count(500)=(500ms)
```

```
}
```