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DESIGN OF MONITORING AND MANAGEMENT SYSTEM OF CLASS ROOMS BASED ON SMART CARD RFID TECHNOLOGY

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Abstract: In olden days the appliances present in the classroom will work Without candidate information, whether the candidate was known or Unknown. So, to overcome these problems by using RFID technology in this circuit, the RFID reader reads the RFID Tags if any Candidate entering into the classroom with the tag then RFID reader reads the RFID tag and that information fed to the controller to run the appliances. Depending Upon RFID readers present in each classroom the student information (Whether present/ absent and running applications information, temperature, humidity and lighting conditions) are fed to central node (principal room) by using Zig-bee technology/internet technology.
Keywords: Campus Card; wireless communication; lighting control; classroom energy saving.

Introduction:

1.1.1: IR Communication:

In IR communication, the IR Rays generator producing IR rays. That are falling the IR Sensor through door shown below. In below figure (1) the light continuously falling on IR sensor then it will not getting any disturbance and cannot give any control signal to activate the lights and fans. When a candidate entering into hall then IR rays cannot fall on the IR Sensor, Then it will give a control signal to Micro Controller to activate the lights and fans shown in fig (2).

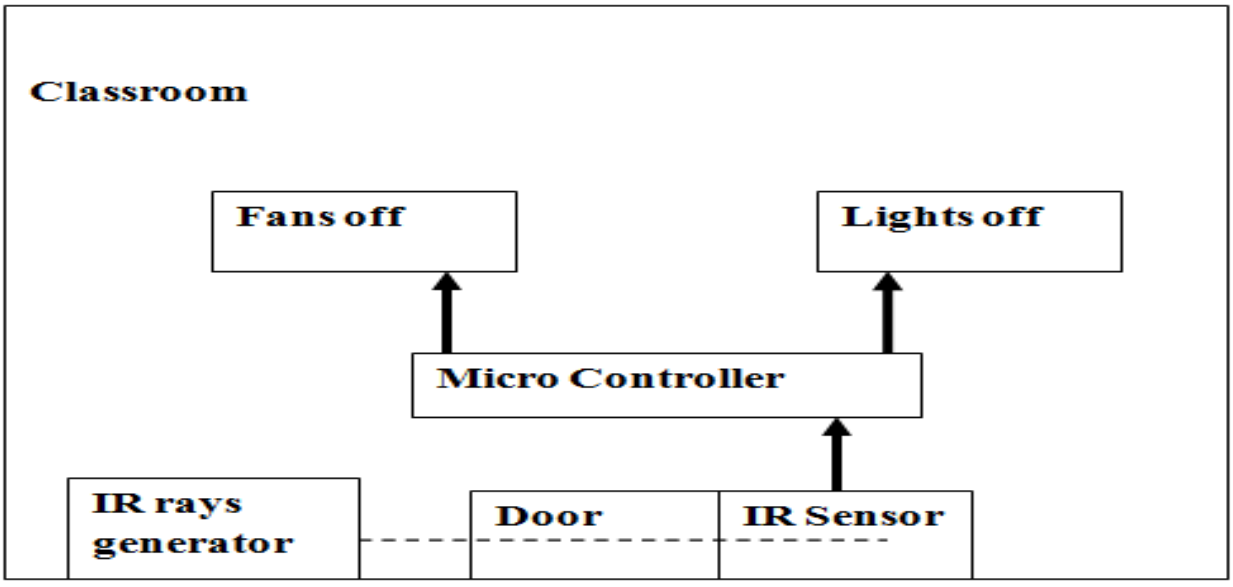


Fig 1: IR Communication

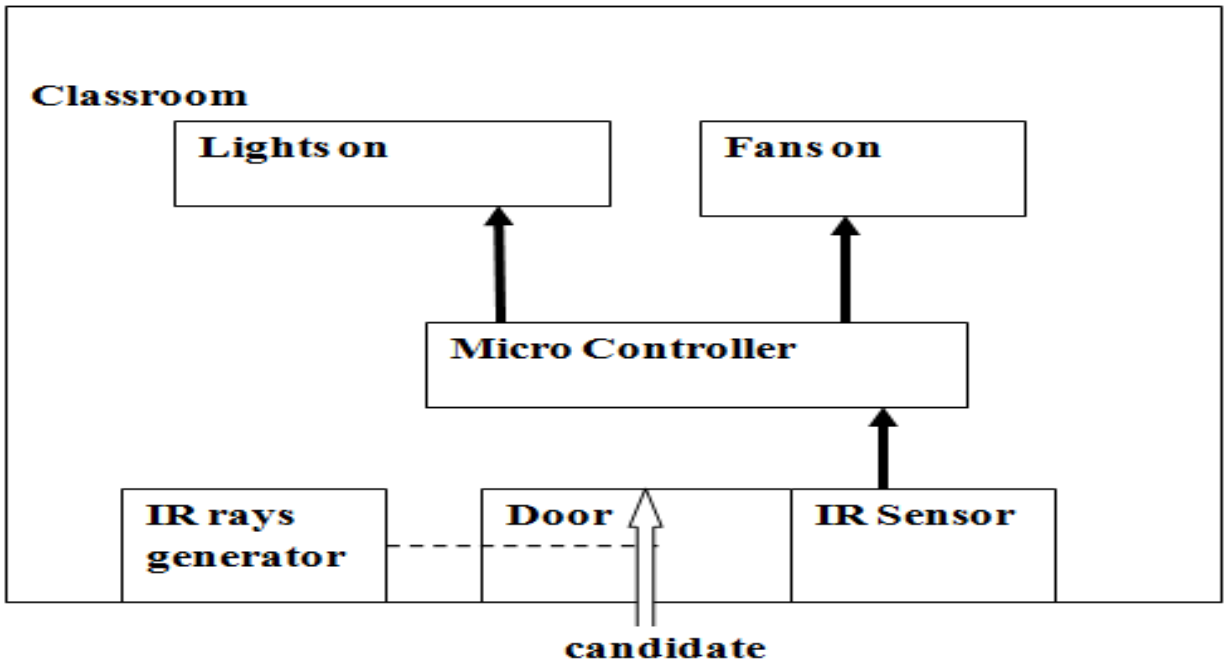


Fig 2: IR Communication when candidate entering into room IR Rays not falling on IR Sensor then it will activate Micro Controller to on the fans, lights

1.1.2: Sensors Communication:

In the second stage, depending upon the atmospheric conditions such as light, temperature falling on the sensors the Micro Controller activate to controls the applications like fans, lamps on shown below.

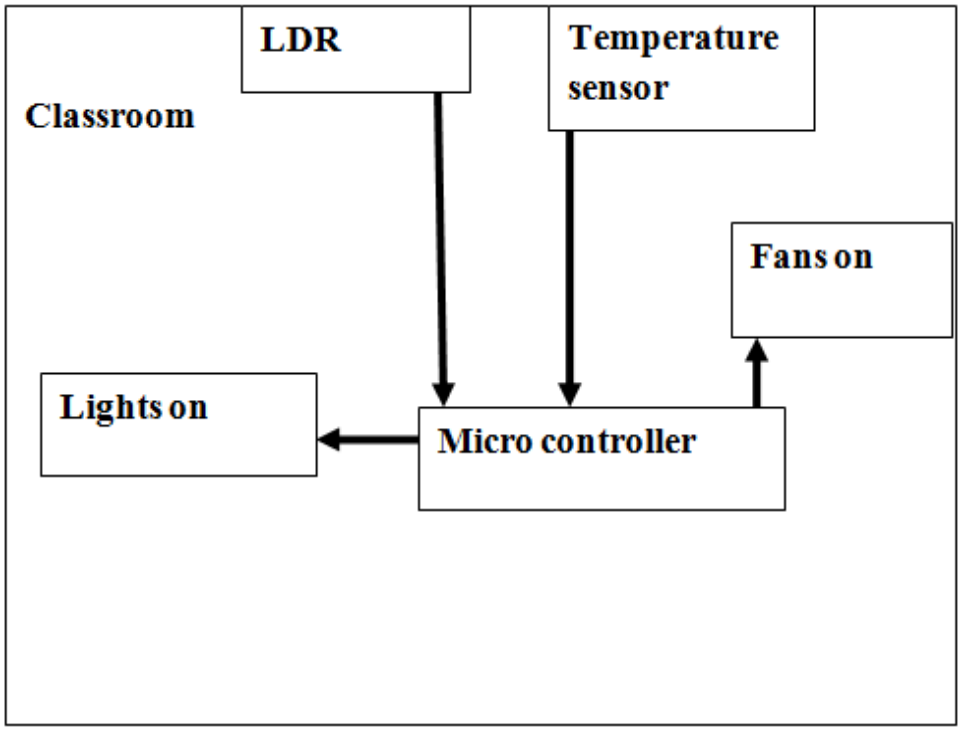


Fig 3: Sensors Communication

The light falling on the LDR is low then, LDR Resistance is high then it will give control signal to Micro Controller to On the Lights. When light falling on the LDR is high then, LDR Resistance is low then it will not give any control signal to Micro Controller so the Lights are off. The temperature falling on the Temperature Sensor is low then; it will not give control signal to Micro Controller, so the fans are off. When temperature falling on the Temperature Sensor is high then, it will give control signal to Micro Controller to on the fans.

1.1.3: IR and Sensors Communication:

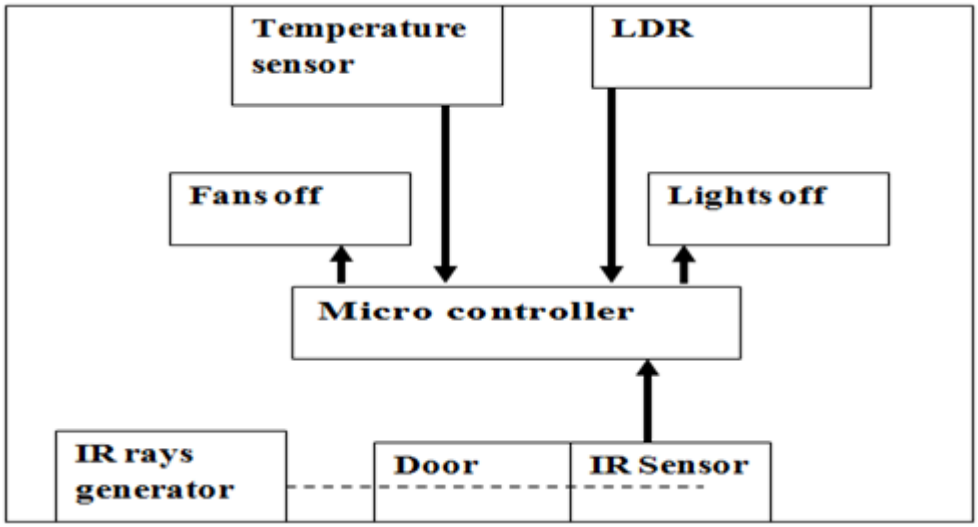


Fig 4: IR Sensors Communication when candidate cannot enter into hall

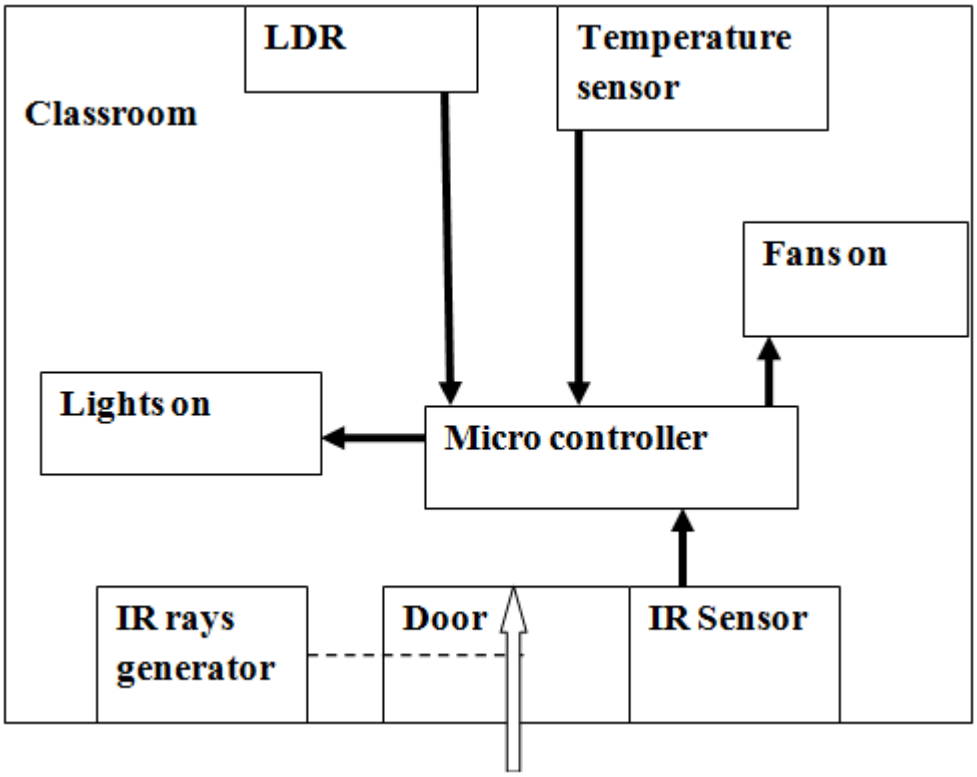


Fig 5: IR Sensors Communication when candidate enter into hall

In IR communication, the IR Rays generator producing IR rays. That are falling the IR Sensor through door shown below. However, in above figure the light continuously falling on IR sensor then it will not getting any disturbance and cannot give any control signal to activate the lights and fans.

When a candidate entering into hall then IR rays cannot fall on the IR Sensor, Then it will give a control signal to Micro Controller to activate the lights and fans shown in fig. The light falling on the LDR is low then, LDR Resistance is high then it will control signal to Micro Controller to On the Lights. When light falling on the LDR is high then, LDR Resistance is low then it will not give any control signal to Micro Controller so the Lights are off. The temperature falling on the Temperature Sensor is low then; it will give control signal to Micro Controller to off the fans. When temperature falling on the Temperature Sensor is high then, it will give control signal to Micro Controller to on the fans.

Based on this platform, by using sensors and RFID Technology, when a candidate entering into hall then RFID Reader Reads the tag, then it will give a control signal to Micro Controller for activating the lights and fans shown in fig. The light falling on the LDR is low then, LDR Resistance is high then it will give a control signal to Micro Controller to turn On the Lights. When light falling on the LDR is high then, LDR Resistance is low then it will not give any control signal to Micro Controller so the Lights are off. The temperature falling on the Temperature Sensor is low then; it will give control signal to Micro Controller to turn off the fans. When temperature falling on the Temperature Sensor is high then, it will give control signal to Micro Controller to on the fans. With the development of Internet technology, all variety of campus basically are equipped with campus card system; the campus card system is greatly convenient for teachers and students, the school staff work on their study and life management. By using Zigbee or ETHERNET technology we will sending student information central node so the data can easily fed to higher position in that organization.

Block Diagram:

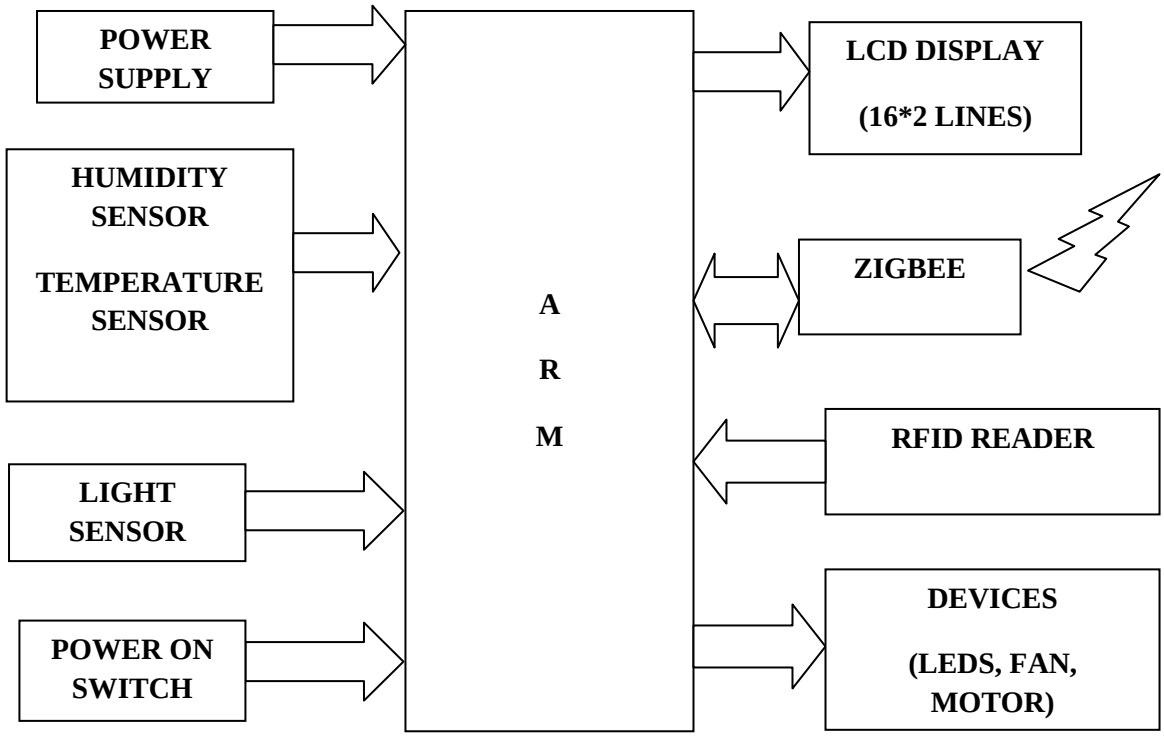


Fig: transmitter section

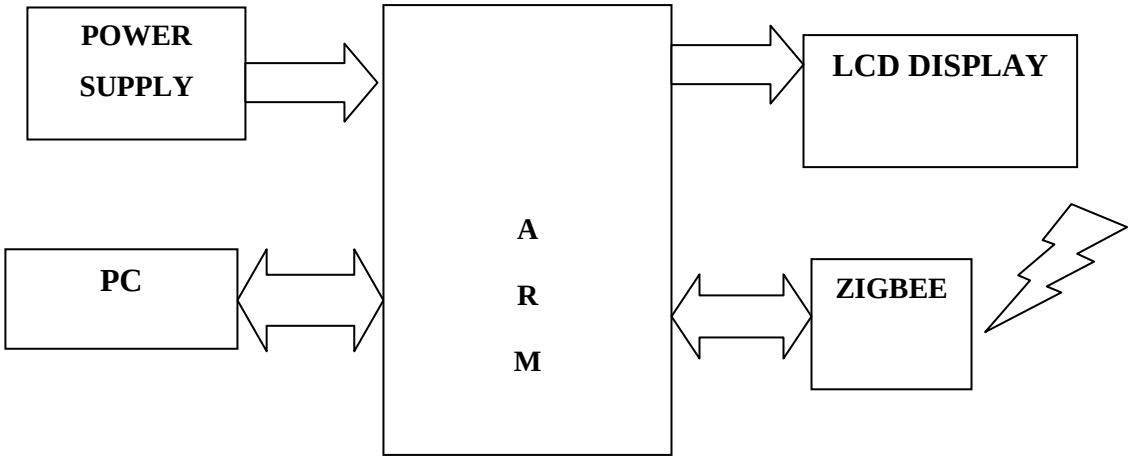


Fig: Receiver Section

Hardware Required:

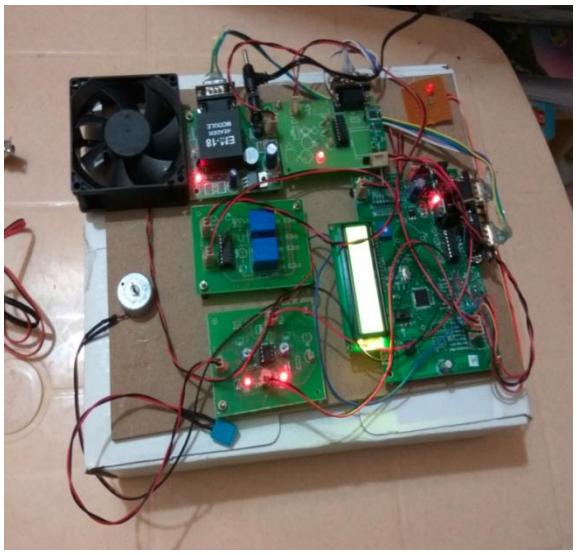
- Micro controller(arm cortex)
- LCD display
- RFID reader and RFID tags
- ZIGBEE module
- Temperature sensor
- Humidity sensor
- Light sensor
- Controlled devices

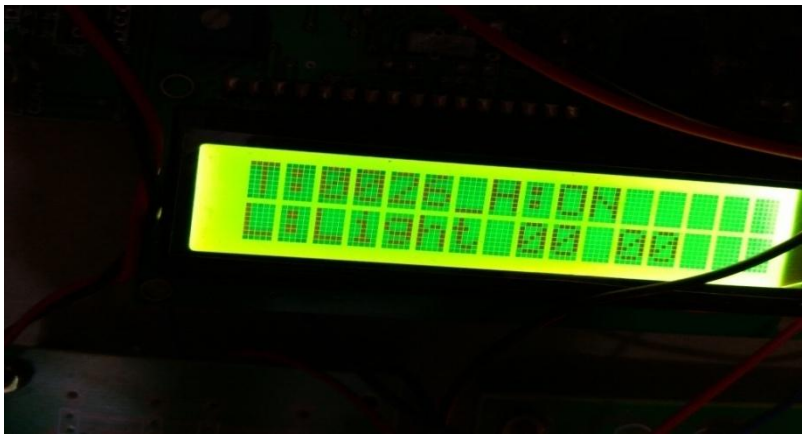
SOFTWARE REQUIRED:

- KEIL µ VISION
- Express PCB
- Flash Magic

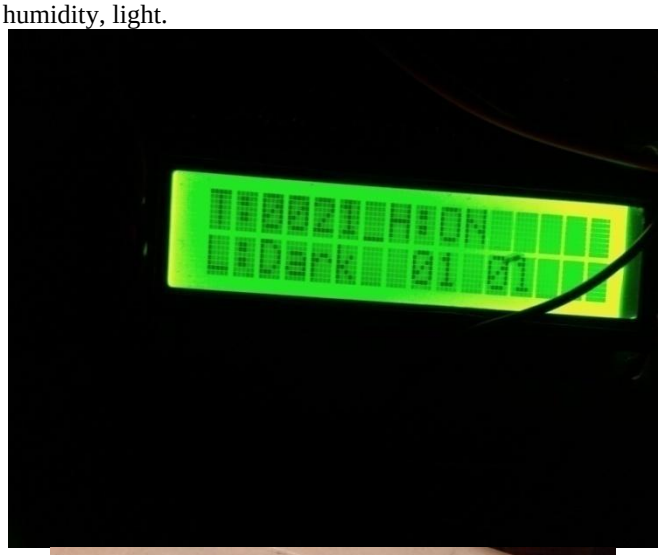
Results:

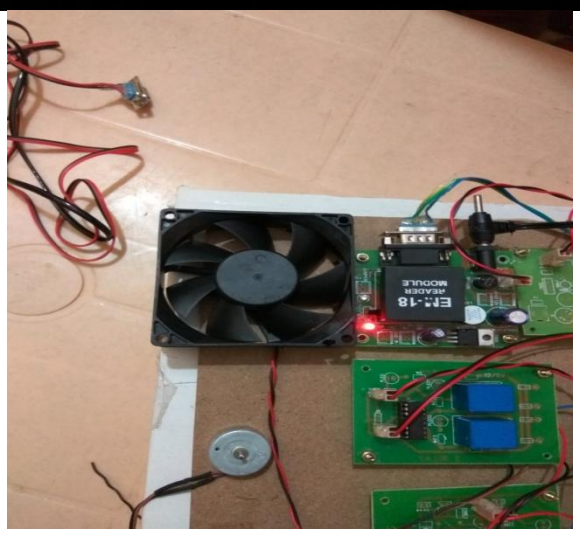
When no candidate entering into hall then the display shows the no candidates as 00, 00 shown below.



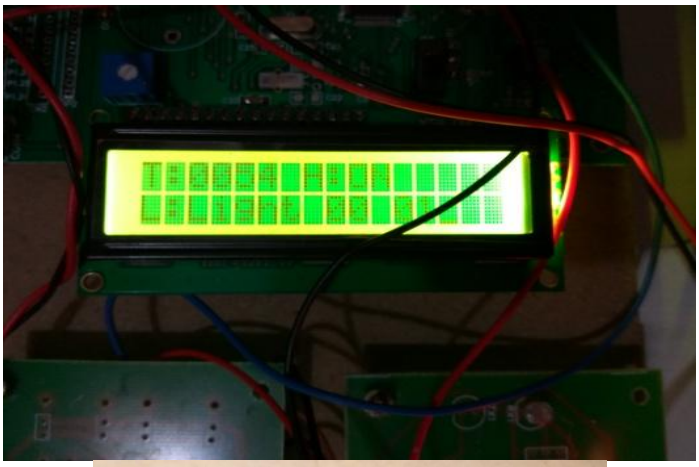


When candidate present at the hall then RFID Reader reads the tag and giving that signals to controller, then control giving output to display for showing present of candidates as 01, 01 and by using sensors display displays the temperature, humidity, light.

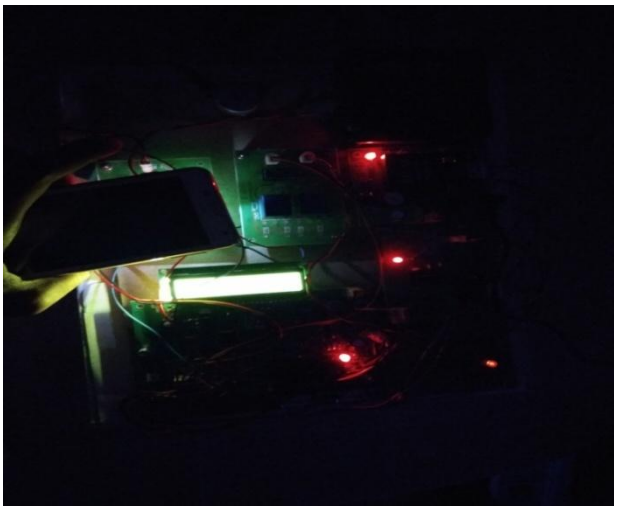


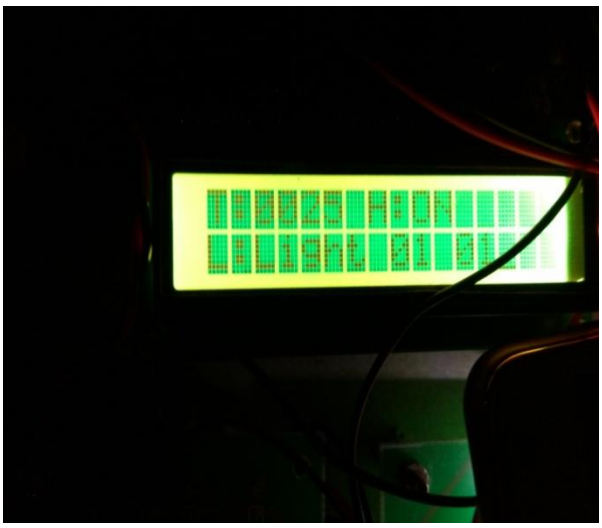


When temperature is low then temperature sensor producing low voltage signal depending upon that signal the control cannot gives a control signal to turn on the fans. If temperature is so high then temperature sensor producing high voltage signal depending upon that signal the control gives a control signal to turn on the fans shown below.

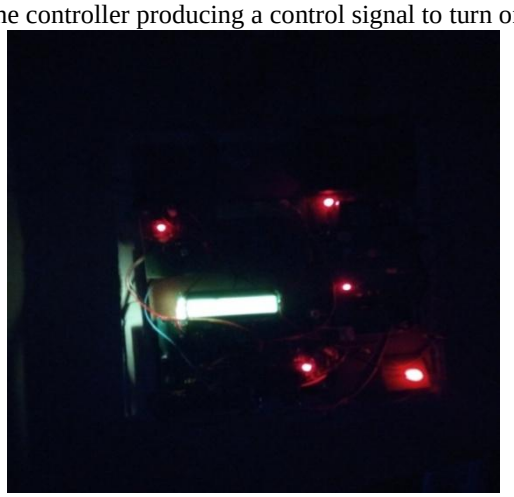


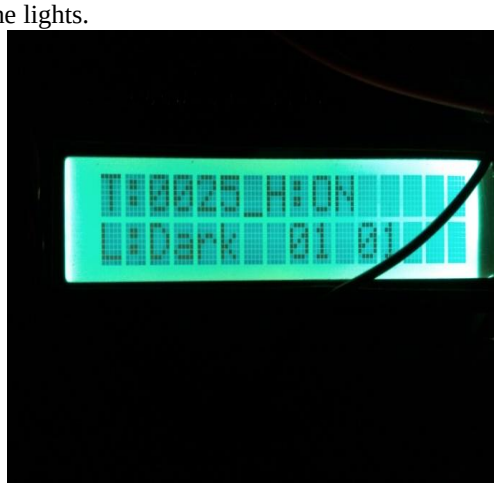
When light intensity on LDR is low then LDR offers high resistance so depending upon resistance of LDR the controller producing a control signal to turn on the lights. If light intensity on LDR is high then LDR offers low resistance so depending upon resistance of LDR the controller cannot producing a control signal to turn on the lights shown below.



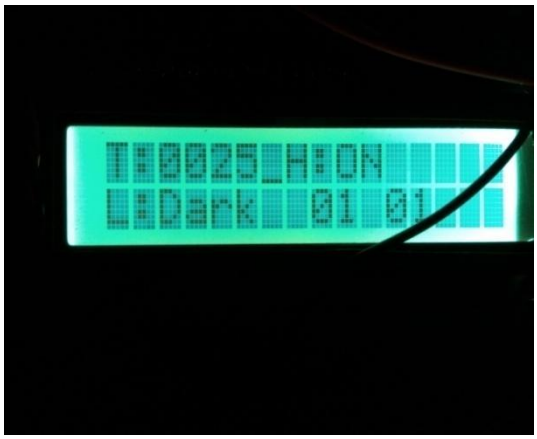


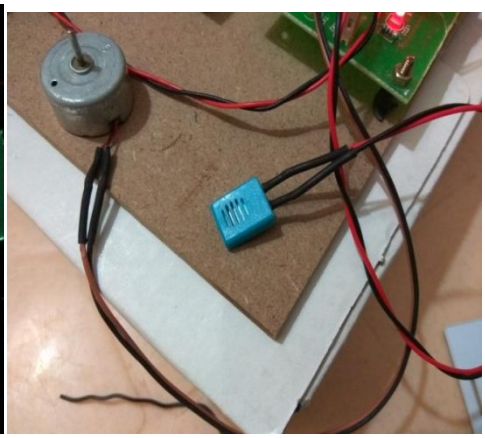
When light intensity on LDR is low then LDR offers high resistance so depending upon resistance of LDR the controller producing a control signal to turn on the lights.





When humidity is low then humidity sensor producing low voltage signal depending upon that signal the control cannot gives a control signal to turn on the fans. If humidity is so high then humidity sensor producing high voltage signal depending upon that signal the control gives a control signal to turn on the fans shown below.





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