|  |
| --- |
| Aim: |
|  | *Analyses of a LDR (Light dependent resistor).* |
|  | Theory: |
|  | *LDR-Light Dependent Resistors* |
|  | *The passive component is basically a resistor whose resistance value decreases when the intensity of light decreases. This optoelectronic device is mostly used in light varying sensor circuit, and light and dark activated switching circuits.* |
|  | *The most common type of LDR has a resistance that falls with an increase in the light intensity falling upon the device* |
|  | *When the light level decreases, the resistance of the LDR increases. As this resistance increases in relation to the other Resistor, which has a fixed resistance, it causes the voltage dropped across the LDR to also increase.* |
|  | *The value of the fixed resistor will depend on the LDR used, the transistor used and the supply voltage.* |
|  | Learning and Observations: |
|  | *When light falls i.e. when the photons fall on the device, the electrons in the valence band of the semiconductor material are excited to* |
|  | *the conduction band. These photons in the incident light should have energy greater than the band gap of the semiconductor material to make* |
|  | *the electrons jump from the valence band to the conduction band. Hence when light having enough energy strikes on the device, more and more* |
|  | *electrons are excited to the conduction band which results in large number of charge carriers. The result of this process is more and more* |
|  | *and hence it is said that the resistance of the device has been decreased.* |
|  |  |
|  | Problems and troubleshooting: |
|  | *Loose connection of cables.* |
|  | *Loose connections of LDR device.* |
|  | *Error in programming or coding.* |
|  | Precautions: |
|  | *While unplugging the USB ,pull the plug nt the cable.* |
|  | *Connectionns should be tight and according to the coding done on audrino software.* |
|  | *Handle the apparatus like AUDRINO BOARD ,LDR and breadboard carefully.* |
|  | *Learning Outcomes:* |
|  | *Working and appearence of Audrino.* |
|  | *Working of a photoresistor.* |
|  | *Design and analysis of breadboard alongwith its circuit diagram.* |