Light Sesnors

Available and suitable options

1. photodiodes
2. phototransistors
3. TSL125(readymade module)

comparison

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|  | photodiodes | phototransistors | TSL125 |
| cost | Low(less than rs. 5) | Low(rs10- rs. 20) | high |
| Performance |  |  |  |
| Visible range | Good | Very good | Very good |
| IR | Good | Very good | Excellent |
| Size | Small | Small | Small |
| Other parts required | Less(1 resistor least) | Medium(2 resistors least) | Less(1 resistor least) |
| Durability\* | Short | Medium | Long |
| Response time | Very short(~10ps) | Short | Longer as compared to both |

\* comment is made on the basis of personal experience

All the above mentioned available devices can meet the requirement. However I personally feel phototransistors are more reliable than photodiodes. Therefore I would suggest avoiding photodiodes. TSL125 might be much more accurate but I dont think that much accuracy is what is required. Phototransistors are also cheaper than the other available ICs and can match the accuracy required.

Photodiodes may also require an amplifier circuit to record small changes. Such amplification is provided by phototransistors by there nature of working. TSL125 contains an in-built amplifier circuit.

However photodiodes work better than phototransistors in low light environment.

In short, if we need to keep our budget low we should use phototransistors. If we have enough available budget we should then use available ICs. If the device is to be used primarily in low light conditions then photodiodes must be used.