

Project Name - Smart Cubicle

Group No. - 16

Team Name - QBKL

FEATURES

1.Security

- Using RFID to authenticate the person who owns the cubicle. When the person has not authenticated (i.e not using the cubicle) , PIR will be turned on to detect any kind of movement inside the cubicle. If any unauthorised access occurs , image of the intruder will be captured by PI CAMERA.
- Human detection will be done by using ping sensor and PIR attached to the monitor. They detect whether the person is working at the cubicle or not. If not then security system will be activated after a fixed amount of wait time .

2.Health and Efficiency

- Break Reminder
When the person has been working at the cubicle for too long, (to be detected using aforementioned human detection) , we will recommend the person to take a break and put the security system in place.
- Concentration
When the person is using the cubicle , he should be focussed on his work (i.e computer). So if he is not looking at screen(talking with friends) for a considerable amount of time then he will be reminded to do his work. This is done using Camera.
- Bad Posture Detection
To avoid Slouching while working , we will detect bad posture and remind the person to go back to ideal posture. We will use an accelerometer placed on the shoulder blade of the person , who will then set his ideal posture which we will record . If he/she will deviate from the ideal angle too much (too much slouching or leaning back) then we will send a small vibration via vibration motor to remind him to correct his posture.

3.Ambient Lighting

Depending on the lighting condition of the surrounding , we will **control the intensity** of the LED Bulb (3W) to give proper light to the person working. We will use a Digital light sensor and a High Output LED. To control the intensity , we will use PWM.

SENSORS REQUIRED

1. RFID Scanner
2. Passive Infrared Sensor(PIR) (x2)
3. Pi Camera
4. Accelerometer
5. Vibration Motor
6. Ping Sensor (x2)
7. Digital Light Sensor
8. High output LED (3W)