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| **ROBT206 Microcontrollers with Lab Final Project Report Spring 2019** | |
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| *School* | SST, 2nd year Computer Science |
| *Project Title* | Smart Secret Laboratory Door (SSLD) |
| *Project Description*  For implementing the project the following equipment is necessary:   * Arduino Board (Mega 2560 R3) * Gas Sensor (for detecting hazardous gases in the lab) * Humiture and Temperature Sensor (to control the level of humidity and temperature in the lab) * RFID RC 522 (to open the door securely) * RFID Key Tag * Human Body Infrared Sensor PIR (automate the door) * Push-Button (small) * LED (Red) (to indicate the closed door) * LED (Green) (to indicate the open door) * LED (Yellow) (to demonstrate the light in the laboratory) * Buzzer (to make an alarm sound)   The main goal of the project is to make the Smart Secret Laboratory Door (SSLD), which can help to ease the experiments in the bio labs and make the processes safer.  The door can only be opened using RFID Key Tag from the outside and after which the light in the laboratory is turned on. The sensors of the door are always turned on such as Human Body Infrared Sensor PIR, which opens the door when the approaching movement from the inner side is detected and after which the light in the laboratory is turned off. In addition, SSLD sensors will give a signal to lab workers about the detection of hazardous gases, significant changes in humidity as well as in temperature via buzzer which makes the alarm sound when the level of above-listed features exceed their given normal values (400, 50, 30 respectively). Moreover, in the case of really big danger, lab workers can give a signal via the push button, which plays the melody from the famous movie “Pirates of the Caribbean” indicating emergency situation after which lab will be destroyed.  In order to implement the above-listed features, the DHT and RFID-master libraries were used. | |