Smart Room

CS404 Project Proposal

By - Mohit Sharma - B12006,
Ankur Sardaar - B13108,
Pushpendra Meena - B13132,
Siddharth Gangal - B13232.

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Executive Summary

The goal of this project is to build a smart room that captures the happenings in and out the room and performs certain assigned functions accordingly. The first in the list is an automatic door lock system for the room. For this one there will be a camera overlooking the door. Whenever someone approaches and is in the pre-required range of the camera, it will click a photo and send it to the concerned owner who then can approve and then the door would automatically unlock. Second one covers the fact that if the door is left open for more than an assigned period, a message will be forwarded to the owner regarding the same. Third point of implementation will include a temperature sensor inside the room, that will monitor and control the speed of the fan accordingly according to the pre-entered values. And last one will be the smart light monitoring system. Whenever someone enters the room, lights and fan will turn ON by themselves and will be turned OFF, when the person leaves the room. Initially we are planning to do this for only one person entering the room (not multiple). We hope to achieve all these qualities and functionalities of the proposed Smart Room in the given time frame.

CURRENT STATUS

We are now working on the theoretical part for this project i.e pros and cons and the reliability of the systems that we are planning to design.

TEAM STRUCTURE

We are a team of four students and each one of us would look after one of the functionalities helping others in the course of time obviously. This is yet to be divided and will be notified soon.

Equipment needed

- The two basic needs for the project are sensors to gather data and microcomputers to take that data and send it to a central server. We already have BeagleBones that can both gather data and be a server. Also sensors ranging from temperature should be acquired and tested.
- **Electronic Equipments:**

S.No.	Item	Quantity	Site
1	Relays	2	
2	Piezo Speaker	1	http://www.radioshack.com/85dbpiezobuzzer/2730060.html
3	SPST Momentary Push-Button	3	http://www.ebay.com/itm/NewMiniPushButtonSPSTMomentaryNOOFFONSwitch10mmRed/321279754705
4	Red LED	5	
5	Green LED	5	
6	npn Transistor(P2N2222A)	5	http://oomlout.co.uk/products/transistorx10p2n2222a
7	Rectifier Diode(1N4001)	5	https://solarbotics.com/product/d3/
8	2.2k Ohm Resistor (1/4 watt)	5	-
9	10k Ohm Resistor (1/4 watt)	5	-
10	1M ohm resistor (1/4 watt)	5	-
11	560 ohm resistor	5	-
12	Perf Board (10X20 holes or longer)	1	-

13	Gauge Connector Wires	30	-

- **Hardware Equipments:**

S.No.	**Items**	**Dimensions**	**Quantity**
1	PVC Pipe	20”X ½”	1
2	Right Angle PVC Connectors	½”	5
3	5-Way PVC Connector	½”	3
4	Suction Cups	½”	5
5	Thick Metal Strip	6” X ½” X 1/64”	1
6	Metal Sheet	4.5” X 1” X 1/32”	1

- In addition to all this, we need solenoid switch, resistor assortment, batteries, two dc motors(to act as fans), temperature sensor, sound sensor, microphone and IR sensors.