Tasks

Alarm clock rings, then

1. Room lights are turned ON
2. Window curtain opens
3. Water heater (Geyser) in bathroom switched ON
4. Water tap opens and tub fills with water
5. Music starts playing when person enters the bathroom
6. After several minutes, water in the jug starts boiling (I-e: Electric kettle is turned ON). If there is no water in the kettle, the system must inform the user.
7. Garage door opens when user tries to enter using 1 layer identification via finger print scanner.

Proposed Methodology

a) Solution for 1. - Relay based switching (6V, 220VAC / 15A) directly from Arduino.

b) Solution for 2. – Two micro switches will be placed on the ends of railings, when the forks of dc motors touch those switches Arduino will cut their power by signaling the motor driver. For closing the curtains 1 micro switch will be placed in the center of the railing.

c) Solution for 3. - Relay based switching (12V, 220VAC / 30A).

d) Solution for 4. – Water tap of the tub will be turned ON after several minutes of previous step (c). For water level detection in the tub we will use sonar sensor, and the tap will be rotated using servo motor (torque 15kg/cm). When the sonar indicates that the tub is full then Arduino will turn OFF the servo motor.

e) Solution for 5. - Music player (MP3 module) with speakers will be turned ON when micro switch applied at the bathroom door changes its states from normally closed to open.

f) Solution for 6. - Relay based switching (6V, 220VAC / 15A) directly from Arduino. Water level indicator sensor (lid inserted inside the kettle) will give the feedback about level of water to the Arduino.

g) Solution for 7. – Finger print scanner module will be interfaced with Arduino and it will identify the ID of the person, if its positive then relay will be switched (12V, 220VAC / 30A).

h) Human Machine Interface will include C# application, 3“touch screen LCD control / information panel and clock circuit made using Digital ICs.

i) Arduino development board will be used for controlling, and NodeMCU for Wifi connectivity of the system with the online firmware such as Cayenne etc.