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A Survey on Smart IoT based Smart city

Paresh Narkhede[1], Aniket Deo[1], Shubham Bherane[1], Aishwarya Bhosale[1], Kiran Somase[2]

Student, Dept. of Computer Engineering, Dr. D. Y. Patil Institute of Engineering and Technology, Savitribai Pule University, Pune, India[1]

Assistant Professor, Dept. of Computer Engineering, Dr. D. Y. Patil Institute of Engineering and Technology, Savitribai Pule University, Pune, India[2]

ABSTRACT: Social networking on the Web has become an integral part of our lives. Merging of computing with physical things enabled the conversion of everyday objects into information appliances. This merging allows Smart Homes to offer new automation possibilities to their residents. We propose utilizingexisting social networking infrastructures and their Web-based APIs in order to integrate Smart Homes to the Web, offering social status to physical devices. We exploit the functionality and the Web 2.0 technologies provided by Facebook to transform the interaction with the Smart Home into a shared, social experience. A preliminary technical evaluation indicates that our approach is feasible and it offers acceptable performance. In such a context, we focus on the smart home domain and propose a framework called eDomusthat (i) leverages functionalities by a popular social network, i.e., Facebook, toallow a user to remotely interact with the home network and (ii) is augmented with NDN concepts to properly monitor the domesticenvironment. In this paper, we present our framework and our preliminary prototype, by also providing some hints on future work.

KEYWORDS: SmartHome, Social Networking Sites, Facebook, Embedded Devices, Web server

I.INTRODUCTION

Social Networking Sites (SNS) have penetrated deeply in our lives, enabling collaboration and sharing on the World Wide Web. Their evolvement has allowed millions of people worldwide to communicate, exchange content and extend their social networks through highly interactive, Web-based interfaces. According to, two-thirds of the world's Internet population visit social networking or blogging sites, accounting for almost 10% of all Internet time.

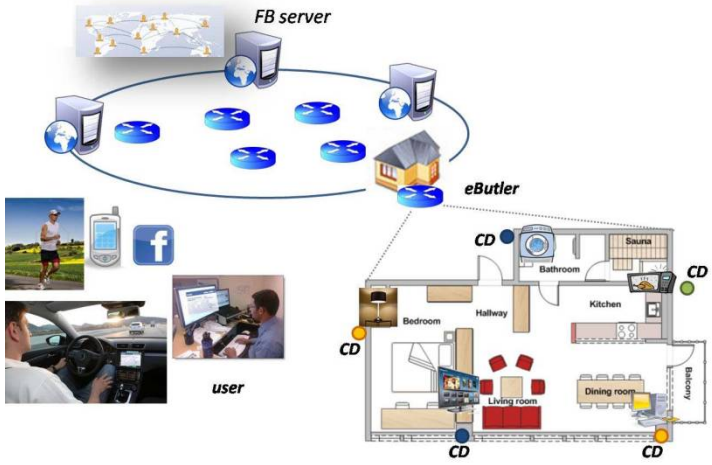

Fig.1: Reference scenario

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Currently, Facebook is the world's most popular SNS with more than 400 million active users1.Social networking has become a fundamental part of the global online experience, transforming the Web 2.0 into a social Web, in which human social capabilities are boosted. On the other hand, the latest years we witness a merging of computing with physical objects. Physical things such as household appliances are equipped with embedded microprocessors and they offer some small-range, wireless communication abilities. This merging introduces to the concept of information appliances, defined as devices or machines, designed to perform some specific functionality but are usable, at the same time, for the purposes of computing. This technological trend comes to justify the vision of the Disappearing Computer. As Mark Weiser points out "themost profound technologies are those that disappear. Theyweave themselves into the fabric of everyday life until they are indistinguishable from it". In the future, Smart Homes will offer new automationpossibilities to their residents. Information processing willbe thoroughly integrated into everyday objects, which willtransform the home into a shared space that pervasively interacts with its habitants. In this paper, we intend to combine these two tendencies, namely the popularity of online social networking and the introduction of information appliances in our lives in order to develop a Smart Home that presents social behaviour. Our goal is to extend the social relationships between people to social relationships with their physical devices.

II.LITERATURE SURVEY

This is the[1] case of smart metering/sensing applications allowing the user to remotely monitor the *smart home* and its appliances (e.g., through temperature, light, humidity, energy consumption sensors).Users mainly ask for simplicity and user-friendliness in the interaction with everyday smart objects. Popular online social networking (OSN) services, like Facebook (FB), can meet such demands by effectively supporting the *social* interplay between things and humans [2] two-thirds of the world's Internet population visit social networking or blogging sites, accounting for almost 10% of all Internet time. Currently, Facebook is the world's most popular SNS with more than 400 million active users. Social networking has become a fundamental part of the global online experience, transforming the Web 2.0 into a social Web, in which human social capabilities are boosted. In this paper, [3]They proposed a novel architecture for SWoT-based gateway, called smart home gateway (SHG). It bridges various non-IP protocols to IP protocol so that objects can be presented to Web and post to social network sites. SHG is efficient and scalable. In particular, it supports some novel functions such as SNS-based authentication, object mobility, dialogue between users and objects and multimedia handling. Some message flows have been presented to illustrate how SHG works. Finally, a SHG prototype was designed and results showed that SHG works well and can flexibly bridge physical devices to virtual world of SWoT and improve interaction between users on SNS with the attached physical objects.[4] In this paper, they proposed a novel model where friends in a social network can share device capabilities with their peers in an access controlled manner. They develop a theoretical model of such a peer-to-peer network in which devices can search for remote capabilities, and elaborate on the trade-oft's of different algorithms in terms of capability searching and execution. Also, they propose a model for social network based sharing of device capabilities in the Internet of Things. They introduce M4M abstract model and propose algorithms for efficiently searching in such device networks while satisfying constraints regarding requester and provider privacy.

III.METHODOLOGY

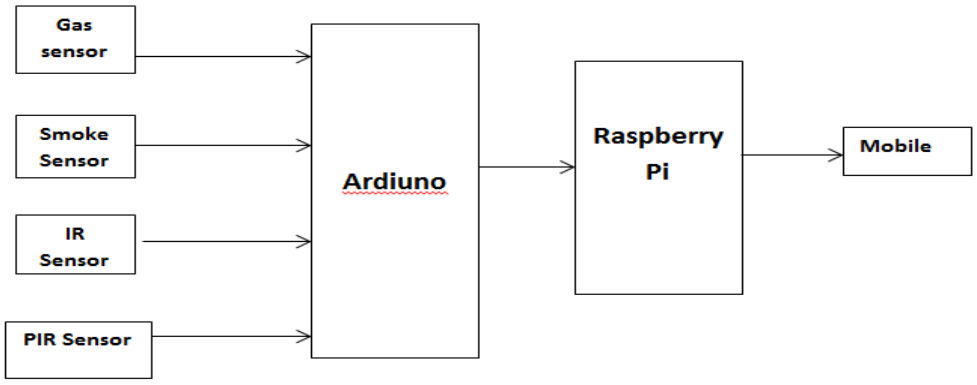

Fig.2:Block Diagram

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PIR sensor

The IR sensor itself is housed in a hermetically sealed metal can to improve noise/temperature/humidity immunity. There is a window made of IR-transmissive material (typically coated silicon since that is very easy to come by) that protects the sensing element. Behind the window are the two balanced sensors.A passive infrared sensor (PIR sensor) is an electronic sensor that measures infrared (IR) light radiating from objects in its field of view. They are most often used in PIR-based motion detectors.When the sensor is idle, both slots detect the same amount of IR, the ambient amount radiated from the room or walls or outdoors. When a warm body like a human or animal passes by, it first intercepts one half of the PIR sensor, which causes a positive differential change between the two halves.

Smoke Detector (MQ 2)

The MQ-2 is a flammable gas and smoke sensor detects the concentrations of combustible gas in the air and outputs its reading as an analogvoltage. The sensor can measure concentrations of flammable gas of 300 to 10,000 ppm.The MQ-2 gas sensor is sensitive to LPG, i-butane, propane, methane, alcohol, Hydrogen and smoke. They are used in gas leakage detecting equipment in family and industry and in portable gas detector.

Features

- Wide detecting scope
- Stable and long lifetime
- Fast response and High sensitivity

Gas Sensor

Gas sensors are available in wide specifications depending on the sensitivity levels, type of gas to be sensed, physical dimensions and numerous other factors. This Insight covers a methane gas sensor that can sense gases such as ammonia which might get produced from methane. When a gas interacts with this sensor, it is first ionized into its constituents and is then adsorbed by the sensing element. This adsorption creates a potential difference on the element which is conveyed to the processor unit through output pins in form of current. A gas detector is a device that detects the presence of gases in an area, often as part of a safety system. This type of equipment is used to detect a gas leak or other emissions and can interface with a control system so a process can be automatically shut down.

IR Sensors

IR Sensors work by using a specific light sensor to detect a select light wavelength in the Infra-Red (IR) spectrum. By using an LED which produces light at the same wavelength as what the sensor is looking for, you can look at the intensity of the received light. When an object is close to the sensor, the light from the LED bounces off the object and into the light sensor. An IR sensor can measure the heat of an object as well as detects the motion. These types of sensors measures only infrared radiation, rather than emitting it that is called as a passive IR sensor. Usually in the infrared spectrum, all the objects radiate some form of thermal radiations. These types of radiations are invisible to our eyes, that can be detected by an infrared sensor.

Arduino

Arduino Uno is a microcontroller board based on the ATmega328P (datasheet). It has 14 digital input/output pins (of which 6 can be used as PWM outputs), 6 analog inputs, a 16 MHz quartz crystal, a USB connection, a power jack, an ICSP header and a reset button. It contains everything needed to support the microcontroller; simply connect it to a computer with a USB cable or power it with a AC-to-DC adapter or battery to get started.

Raspberry Pi

The Raspberry Pi is a credit-card-sized computer that plugs into your TV and a keyboard. It is a capable little computer which can be used in electronics projects, and for many of the things that your desktop PC does, like spreadsheets, word processing, browsing the internet, and playing games.

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IV.SOFTWARE

Operating System	:	Windows8.1/95/98/2000/XP
Programming Language	:	JDK7.0
Application Server	:	Apache tomcat 7.0
Tool	:	Eclipse Luna

Eclipse Luna:
This is used for write a program
1. Java 8 support including language enhancements, search and refactoring, Quick Assist and Clean Up to migrate anonymous classes to lambda expressions and back and new formatter options for lambdas.
2. The Eclipse workbench provides a new dark theme which includes syntax highlighter settings for several programming languages.

JDK7.0:
It is used for run the program file.Java Platform, Standard Edition 7 is a major feature release. This document includes information on features and enhancements in Java SE 7 and in JDK 7, Oracle's implementation of Java SE 7.

Apache tomcat 7.0:
It is server for above software.Apache Tomcat, often referred to as Tomcat Server, is an open-source Java Servlet Container developed by the Apache Software Foundation (ASF). Tomcat implements several Java EE specifications including Java Servlet, Java Server Pages (JSP), Java EL, and Web Socket, and provides a "pure Java" HTTPweb server environment in which Java code can run.
Tomcat is developed and maintained by an open community of developers under the auspices of the Apache Software Foundation, released under the Apache License 2.0 license, and is open-source software.

V.CONCLUSION

We developed an application that enables information appliances, which are deployed inside a Smart Home, to become citizens of the Web with social status. The import of the Smart Home to the SNS is done pervasively, blended with the user's current online experience. We also implemented a publish/subscribe eventing infrastructure, which operates inside the SNS platform. Our preliminary technical evaluation efforts indicate that our approach has the potential to constitute the driver forthe transformation of Smart Homes into interoperable, shared spaces.Our work constitutes a challenge for a wide variety of Web applications, to be integrated to social networking applications and gain social perspective.

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[8] xbee-arduino, available at *http://code.google.com/p/xbee-arduino/*