

# Smart Bell Notification System Using IOT

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## Abstract

The goal of this paper is to design and implement a home security system by integrating smart phone and home network service in the absence of residents. With visitor pressing the doorbell, the device records and sends the CCTV of the visitor to the user. Our system provides a convenient user interface for the user to know the surrounding and take appropriate action accordingly. This is implemented by interlocking with the real time SMS server that sends warning message to user when the doorbell is pressed. Raspberry pi supports video and saving images, text and GUI features. Our smart bell system presented in this project supports video, saving images, warning notice, other features. So, using open cv we are detecting the face of the person and sending warning message if necessary, using IOT. Here Pressure sensor is used to indicate if any theft triesto Break the Door.

**Keywords:** Bell, Home Network, Internet of Things

## I. INTRODUCTION

The Internet of Things (IoT) is the network of physical devices, vehicles, home appliances and other items embedded with electronics, software, sensors, actuators, and connectivity which enables these objects to connect and exchange data. Each thing is uniquely identifiable through its embedded computing system but is able to inter-operate within the existing Internet infrastructure. The number of online capable devices increased 31% from 2016 to 8.4 billion in 2017. Experts estimate that the IoT will consist of about 30 billion objects by 2020. It is also estimated that the global market value of IoT will reach \$7.1 trillion by 2020. The IoT allows objects to be sensed or controlled remotely across existing network infrastructure, creating opportunities for more direct integration of the physical world into computer-based systems, and resulting in improved efficiency, accuracy and economic benefit in addition to reduced human intervention. When IoT is implemented using sensors and actuators, the technology

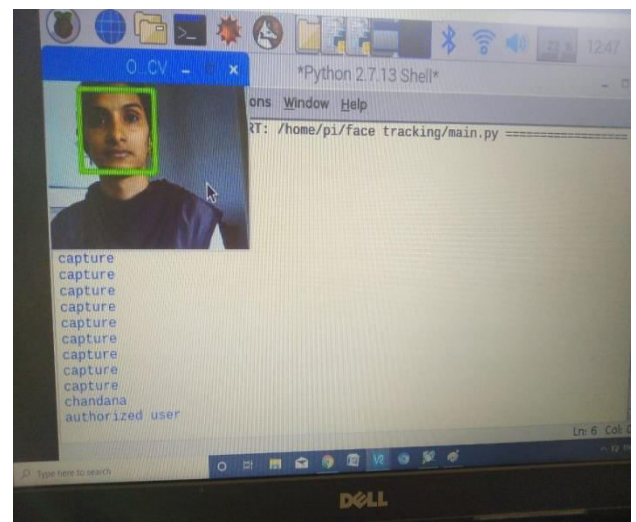
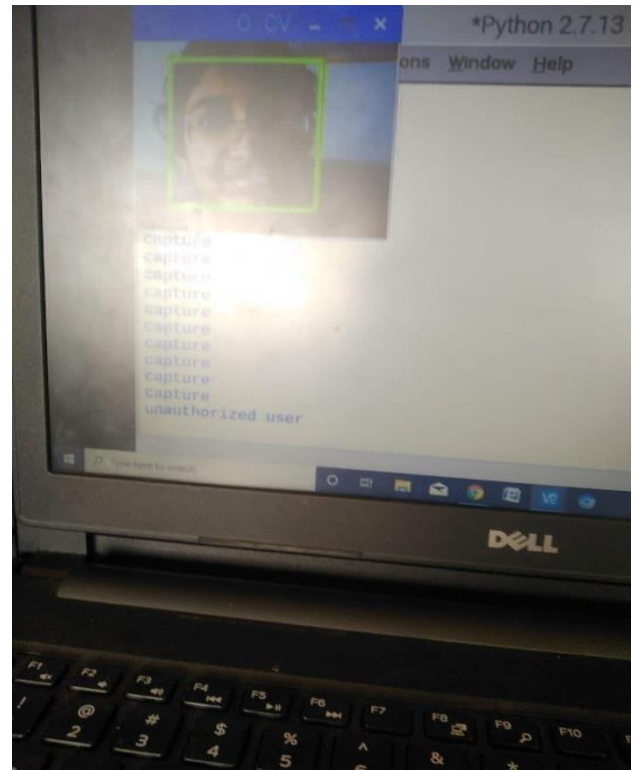
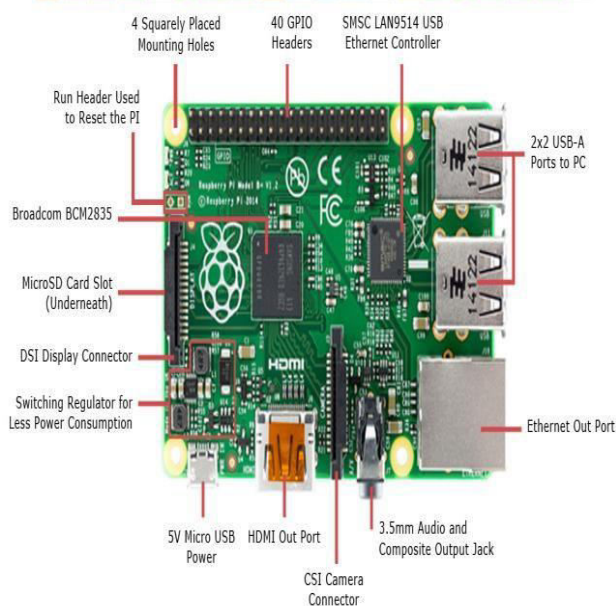
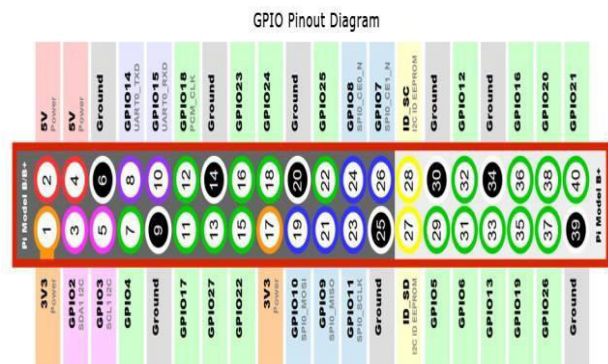
becomes an instance of the more general class of cyber-physical systems, which also includes technologies such as smart homes, intelligent transportation and smart cities.

## II. IMPLEMENTATION DETAILS

The processor at the heart of the Raspberry Pi system is a Broadcom BCM2837 system-on-chip (SoC) multimedia processor. This means that the vast majority of the system's components, including its central and graphics processing units along with the audio and communications hardware, are built onto that single component hidden beneath the 256 MB memory chip at the centre of the board. Now that you have a basic understanding of how the Pi differs from other computing devices, it's time to get started. If you've just received your Pi, take it out of its protective anti-static bag and place it on a flat, non-conductive surface. Before you can start using your Raspberry Pi, you're going to need to connect a display. The Pi supports three different video outputs: composite video, HDMI video and DSI video. Composite video and HDMI video are readily accessible to the end user, as described in this section, while DSI video requires some specialised hardware.

Composite video, available via the yellow-and-silver port at the top of the Pi known as an RCA phone connector is designed for connecting the Raspberry Pi to older display devices. As the name suggests, the connector creates a composite of the colours found within an image—red, green and blue—and sends it down a single wire to the display device, typically an old cathode ray tube (CRT) TV. The yellow RCA phone connector, for composite video output. When no other display device is available, a composite video connection will get you started with the Pi. The quality, however, isn't great. Composite video connections are significantly more prone to interference, lack clarity and run at a limited resolution, meaning that you can fit fewer icons and lines of text on the screen at once. A better-quality picture can be obtained using the HDMI (High Definition Multimedia Interface) connector, the only port found on the bottom of the Pi. Unlike the analogue composite connection, the HDMI

port provides a high-speed digital connection for pixel-perfect pictures on each computer monitors and high-definition TV sets. Using the HDMI port, a Pi can display images at the Full HD 1920x1080 resolution of most modern HDTV sets. At this resolution, significantly more detail is available on the screen. If you're hoping to use the Pi with an existing computer monitor, you may find that your display doesn't have an HDMI input. That's not a disaster: the digital signals present on the HDMI cable map to a common computer monitor standard called DVI (Digital Video Interconnect).



### III. CONCLUSIONS

The whole project takes a new look at the traditional bell vs the modern technology using IoT. With the use of Raspberry Pi, Camera, sensors and other various important modules, our homes are certainly more monitored and secured. This technology will improve the security of our houses. We proposed a system of real time smart door to provide communication between clients and home security. In order to provide effective system, we used Raspberry Pi embedded system which is integrated on the door of a house. The system is based on video technology which is a very

popular technology for providing security and safety in urban areas. We used Raspberry Pi because it is a strong and reliable embedded system device for solving complex and challenging tasks. Using both technologies in the system provide various benefits to increase the efficiency in terms of communication between visitor and owner of the house and providing safety of home, thus making use of IoT and integrating it in lives.

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