BVM Engineering College, VV Nagar

Gujarat Technological University

PROJECT #2

Presented By :

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Pico-Projector based Automation

In this presentation, we'll discuss about …

Aim

Parts Selection

Why I chose this topic

Examples

    * PC

        Remote Desktop Access (SSH/VNC)

        Remote Desktop Mirroring (UV4L)

    * Smartphone

        Remote Desktop Access (SSH/VNC)

        Remote Desktop Mirroring (UV4L)

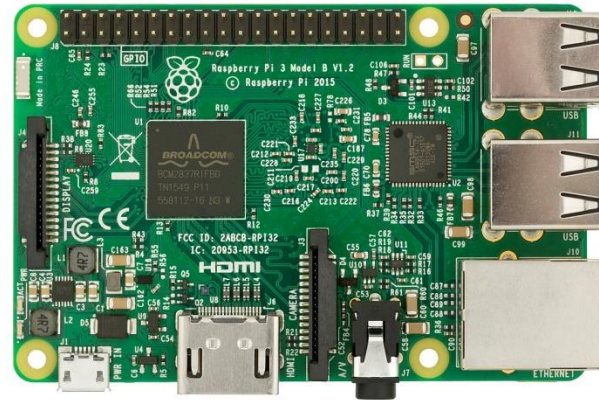**Software Stack**

Next Steps

Aim

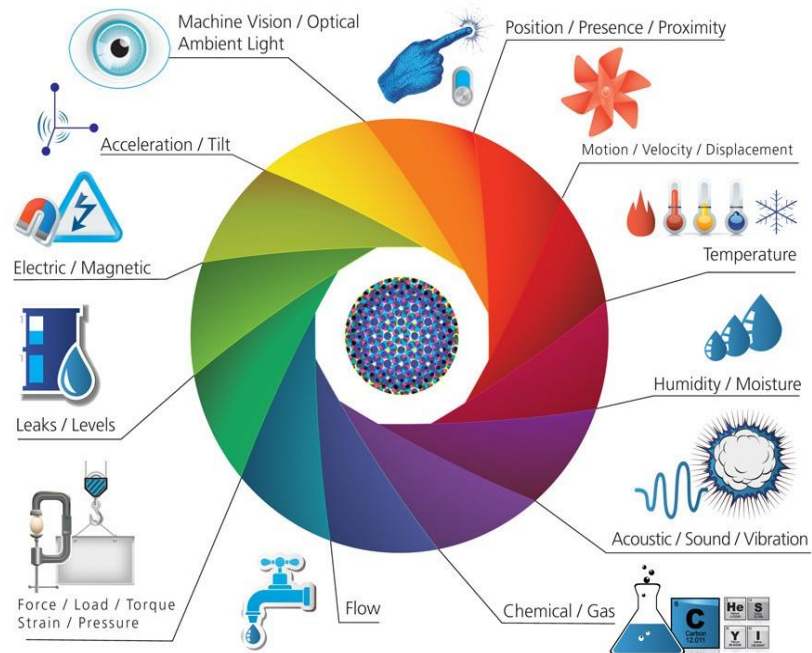## Automation of common tasks
Use of Projection Display

Abstract

The aim of this project is to automate a set of tasks with the help of a Pico-projector module, interfaced to a suitable controller device. Currently, this includes Classroom automation, Real Time video conferencing, and IoT using WebRTC protocols.

Parts Selection

* Pico-Projector (DLPDLCR2000EVM)
* Single Board Computer (RPi3B)
* Android Device (Smartphone)
* Sensors (?)

Machine Vision / Optical Ambient Light

Position / Presence / Proximity

Acceleration / Tilt

Motion / Velocity / Displacement

Electric / Magnetic

Temperature

Leaks / Levels

Humidity / Moisture

Acoustic / Sound / Vibration

Force / Load / Torque Strain / Pressure

Flow

Chemical / Gas

History

Why I chose this topic

Applications of Pico-Projectors

Mobile device projection

Pico projectors

Wearable displays

Smart home displays

Digital signage

Mobile smart TVs

Example - PC

We just saw

Remote Desktop Access (SSH/VNC)

Now, we'll see

Remote Desktop Mirroring (WebRTC)

       * WebRTC is a suite of protocols for real-time communication between browsers.

Example - Smartphone

We're seeing

Remote Desktop Access (SSH/VNC)

Followed by

Remote Desktop Mirroring (WebRTC)

       * WebRTC is a suite of protocols for real-time communication between browsers.

Software Stack

Execution will be carried out by Raspberry Pi

* Linux/Python Scripting + Server-Side programming

Actions controlled by PC/Smartphone

* Minimal steps for use

Next Steps

Classroom Automation

Added Voice-over using TTS support for lecture notes

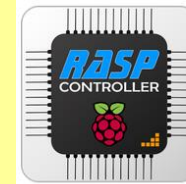Broadcast Support

Classroom Content-Sharing Support

Lab Assistant Support

    * Equipment identification & content retrieval using QR codes.

Student Attendance

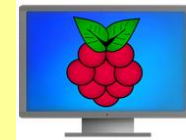   * Scan barcodes from student ID. Send log as CSV files online.

IoT Controlling

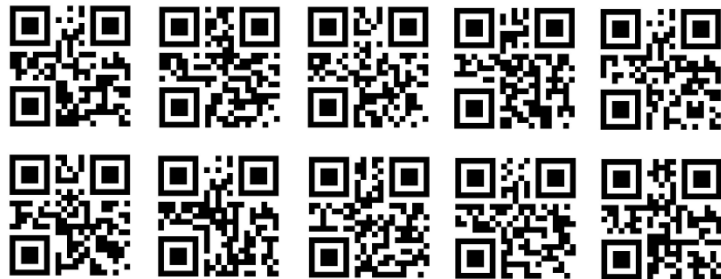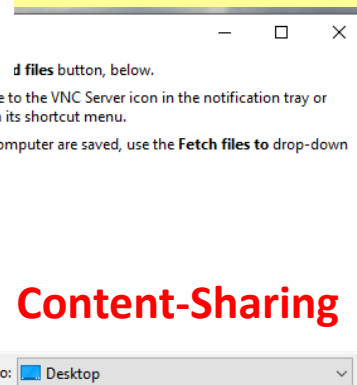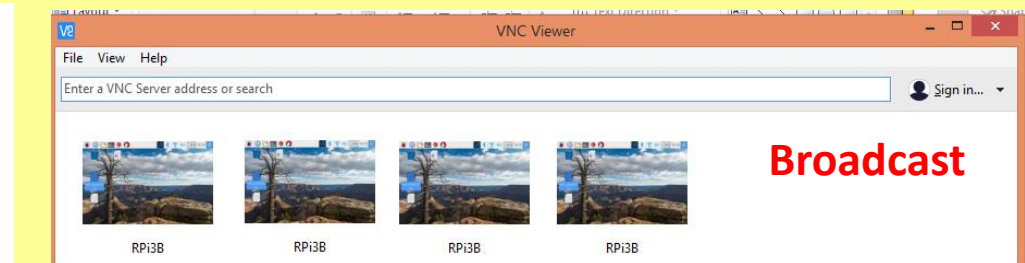RaspController
Ettore Gallina   Tools
3+
Contains ads

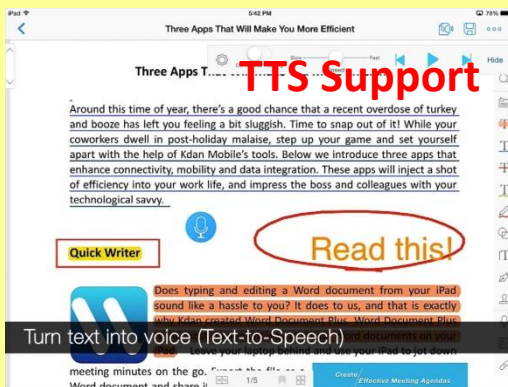Raspicast
Benjamin H.   Video Players & Editors
3+

SMARTPHONES
Lab-Assistant Support

Broadcast

RPi3B   RPi3B   RPi3B   RPi3B

TTS Support
Turn text into voice (Text-to-Speech)

d files button, below.

To fetch files from VNC Server, navigate to the VNC Server icon in the notification tray or status bar and select **File Transfer** from its shortcut menu.

To change where files fetched to this computer are saved, use the **Fetch files to** drop-down list, below.

Send files...   Clear   Fetch files to: Desktop

Content-Sharing

Student Attendance

Thank You