# Smart Mirror

## Speaker Construct and Installation

by Quang Trung Trinh

# 1. Introduction

## ➔ Whole Project Introduction

We trying to make a mirror not only able to reflect physical object but also able to be hooked up with a computer system and display information. Once the mirror is embedded with a computer system, there are a huge horizon of functions and benefits that we are able to implement. In this project, we will only focus on 3 functions for our smartMirror: (1)Display some demanded information on the mirror screen (time, weather, news); (2) Interactability with people through peripherals (microphone, speakers, camera); (3) hackable by Kids. These are the 3 most important requirements from our sponsor (MakerKids) for a project: something looks cool, interactive and hackable by Kids

# 1. Introduction

➔ **Hardware Project Introduction**

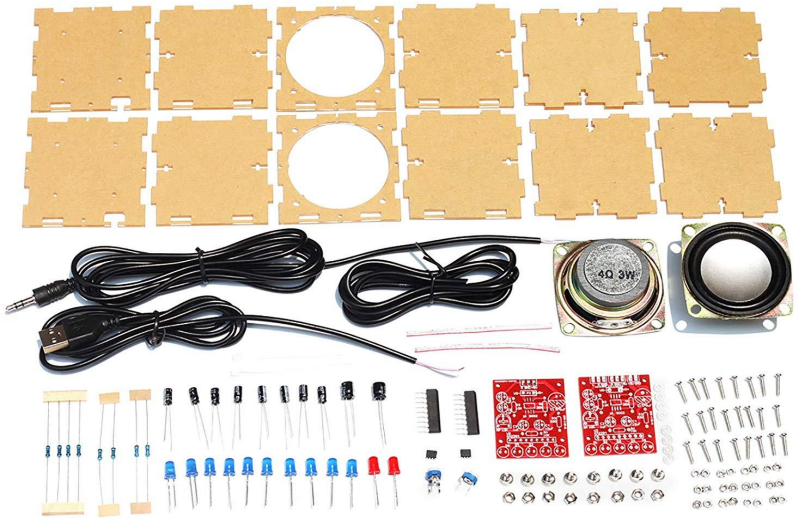
The Speaker that I build in this class will enable our smart mirror to play music, interact with the user by and can also be used as the reminder. The speaker will be builded with the amplifier and be connected to Raspberry Pi 3B+ . The reason we need the amplifier is the speaker alone will have a very limited sound ability

# 2. Budget for Implementing the Speaker with amplifier

# Speaker Package

Included the PCB, necessary components and the speaker.

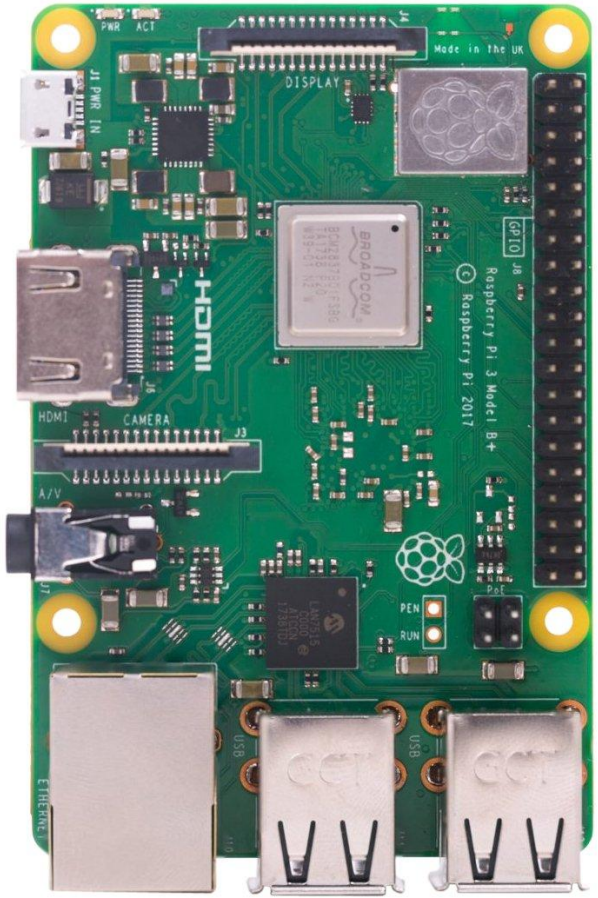
**Cost: $21**



# Raspberry Pi 3B+

Included the
Raspberry Pi 3B+
and 8Gb Sd card

**Cost: $75**



# Connectors

Included Ethernet to Usb adapter, Ethernet cable

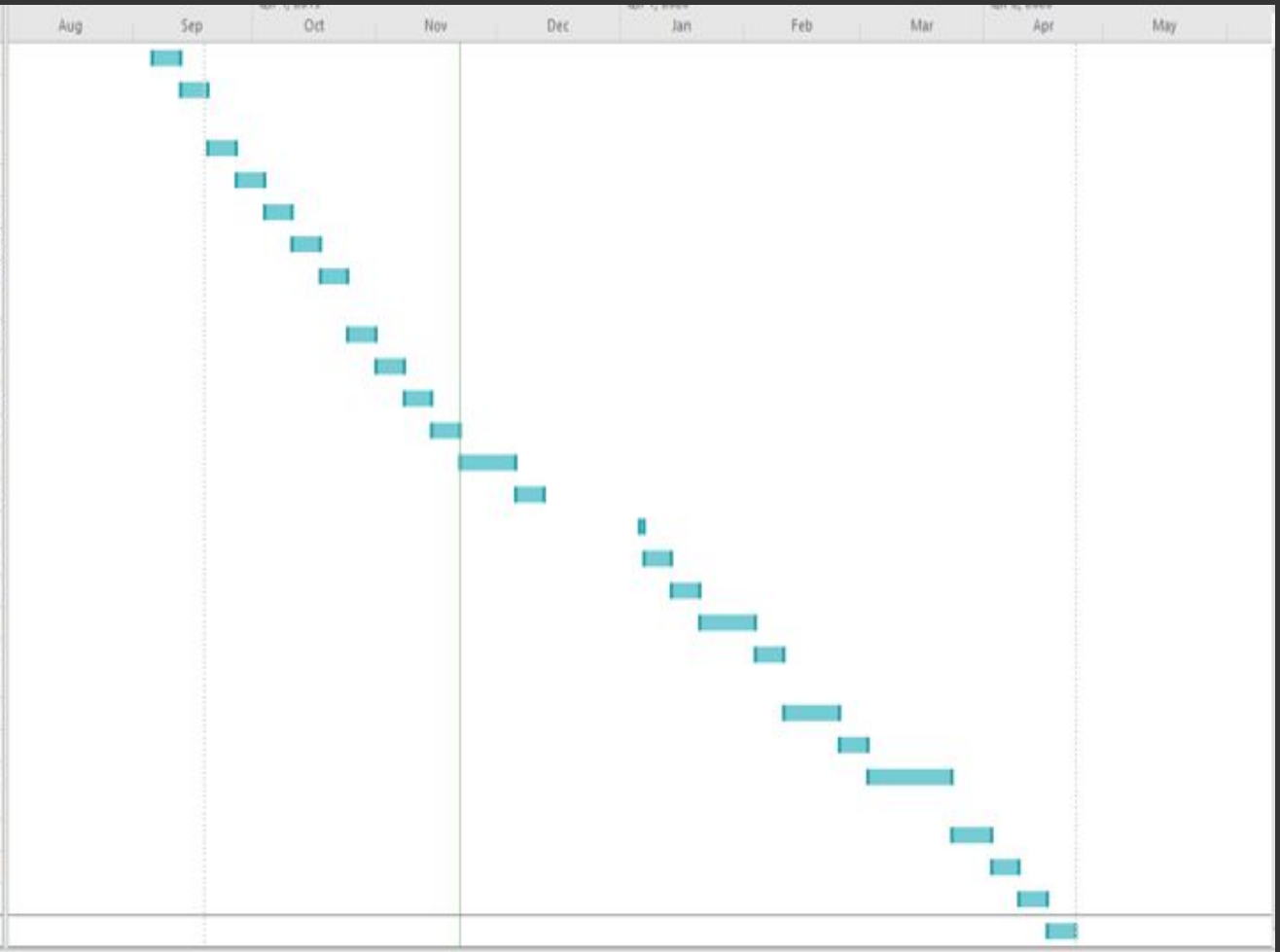
**Cost: $29**

**=> TOTAL COST: 125$**

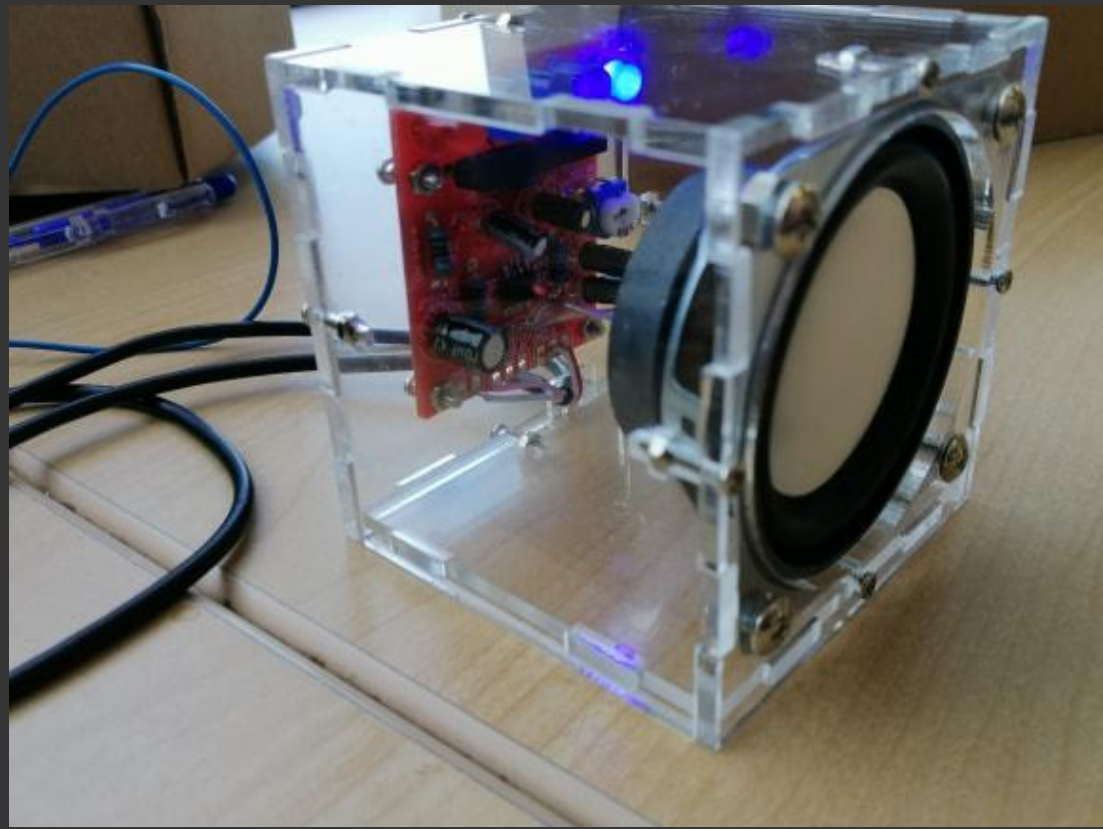
# 3. Schedule

GANTT CHART

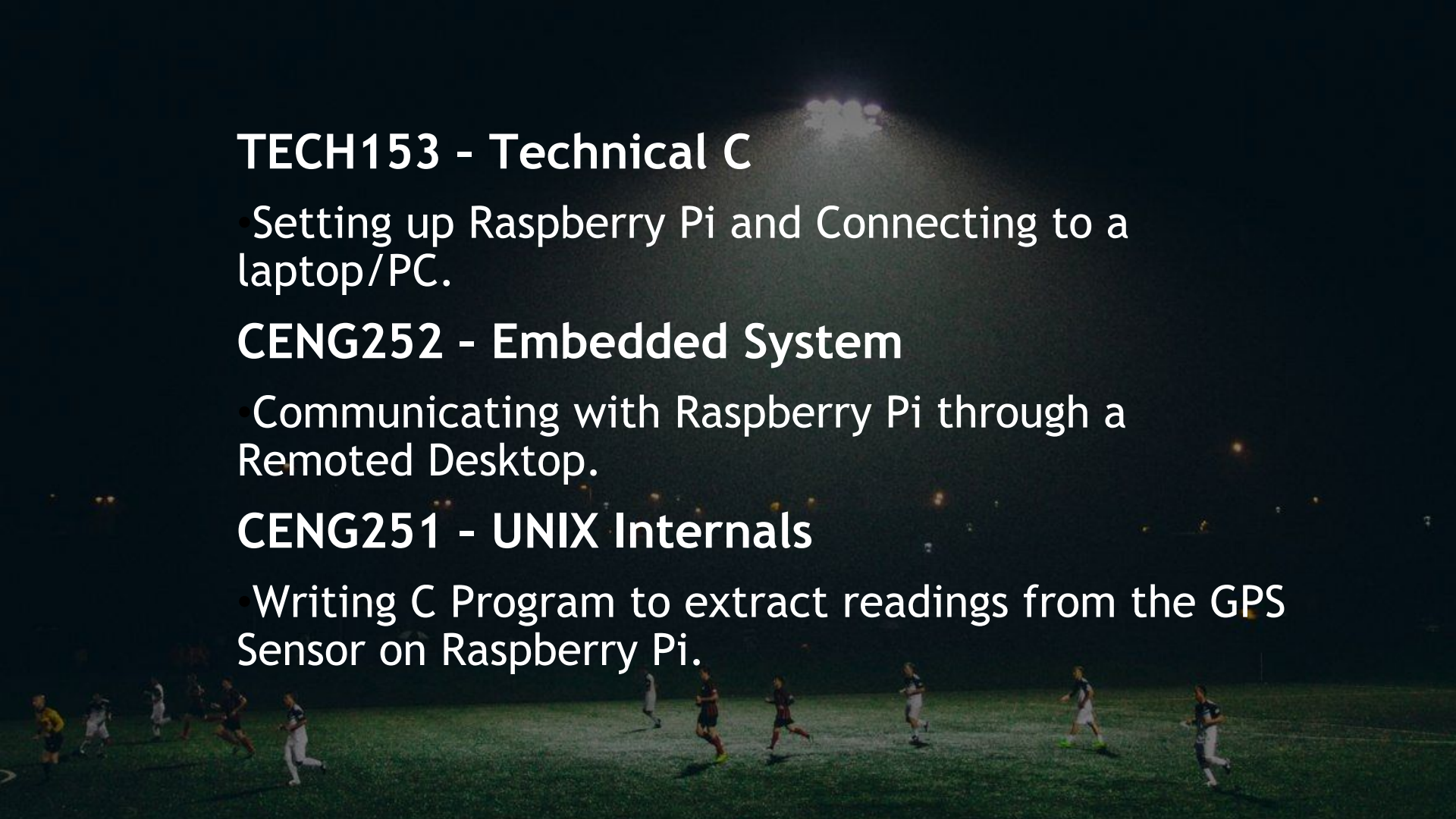
| | Task Name | Start | Finish |
|---|---|---|---|
| 2 | Proposal Due | Fri 9/6/19 | Thu 9/12/19 |
| 3 | Schedule Due/Kick off meeting | Fri 9/13/19 | Thu 9/19/19 |
| 4 | Budget Due | Fri 9/20/19 | Thu 9/26/19 |
| 5 | Parts Ordered | Fri 9/27/19 | Thu 10/3/19 |
| 6 | Acquisitions/Check in meeting | Fri 10/4/19 | Thu 10/10/19 |
| 7 | Breadboard and PCB Designed | Fri 10/11/19 | Thu 10/17/19 |
| 8 | Loading OS/Bootlader on Platform | Fri 10/18/19 | Thu 10/24/19 |
| 9 | Breadboarded Milestone | Fri 10/25/19 | Thu 10/31/19 |
| 10 | PCB Soldered | Fri 11/1/19 | Thu 11/7/19 |
| 11 | PCB Power Up | Fri 11/8/19 | Thu 11/14/19 |
| 12 | Enclosure Due | Fri 11/15/19 | Thu 11/21/19 |
| 13 | Presentations | Fri 11/22/19 | Thu 12/5/19 |
| 14 | Build Instructions Due | Fri 12/6/19 | Thu 12/12/19 |
| 15 | Scheduling and group meetings | Mon 1/6/20 | Mon 1/6/20 |
| 16 | Group project status update | Tue 1/7/20 | Mon 1/13/20 |
| 17 | App, Web and Database S.R.S | Tue 1/14/20 | Mon 1/20/20 |
| 18 | Group project continue | Tue 1/21/20 | Mon 2/3/20 |
| 19 | App, Web and Database Independent Demonstration | Tue 2/4/20 | Mon 2/10/20 |
| 20 | Group project continue | Tue 2/11/20 | Mon 2/24/20 |
| 21 | Group integration | Tue 2/25/20 | Mon 3/2/20 |
| 22 | Group project continue and troubleshoot | Tue 3/3/20 | Mon 3/23/20 |
| 23 | Group physical enclosure complete | Tue 3/24/20 | Thu 4/2/20 |
| 24 | Project Demonstration | Fri 4/3/20 | Thu 4/9/20 |
| 25 | Group Presentations | Fri 4/10/20 | Thu 4/16/20 |
| 26 | Group Final Report | Fri 4/17/20 | Thu 4/23/20 |



# 4. Enclosed Hardware



# 5. Course knowledge used from previous classes



## TECH153 – Technical C

- Setting up Raspberry Pi and Connecting to a laptop/PC.

## CENG252 – Embedded System

- Communicating with Raspberry Pi through a Remoted Desktop.

## CENG251 – UNIX Internals

- Writing C Program to extract readings from the GPS Sensor on Raspberry Pi.


Thank You !