

White Paper

Designing a Mobile Phone using a Microcontroller

Course Name : Wireless Communications
Course Code : EENG464
Semester : Spring 2021-2022

Objective of the Assignment:

Write a white paper about the design and implementation of a microcontroller based mobile phone with the features and functions described below.

1. Project Overview

Each student will design a mobile communication device with the functions and features as described in the “2. Designing a Mobile Phone Using a Microcontroller” section below. The project presentation should be prepared as a 10 min PowerPoint presentation with the theme of the document “Designing Effective Presentations” available also on the course web page, strictly conforming to the 10 minutes presentation time, including the questions session. The slides should be prepared such that each slide will be presented in one minute. The presentation materials should be placed on a web page where the presenter can fetch it easily for presentation in the class.

Note: All sentences, figures, and graphics you use in your presentation should be originally written, photographed, or drawn by yourself with reference to the Eastern Mediterranean University plagiarism policy. By submitting your work, you agree and accept to transfer all rights of the presentation to the course instructor for future use in the course.

2. Designing a Mobile Phone Using a Microcontroller

1. The required materials are easily available as they are standard daily materials used in the market. Required Materials: A Single-Board Microcontroller (SBM) such as Arduino Uno, Thin-Film-Transistor (TFT) Liquid Crystal Display Touch Shield, Generalized Packet Data Service (GPRS) Shield, Real-Time Clock (RTC), Custom ArduinoPhone Charge Circuit (or Lipo Rider), Lipo battery and a shell for housing the device. The housing shell should be cut and glued by the students to the required shape for professional look.
2. After the materials are obtained, you need to assemble the above electronic components in the following order for installation.
 - a) Plug GPRS Shield into Arduino UNO.
 - b) Then connect TFT Touch Shield to GPRS.
 - c) Connect the RTC module to Arduino UNO.
 - d) Plug in the power module and connect your headset to the headphone jack on the GPRS.
3. Your Arduino Phone should perform the following main functions.
 - a) Receiving and sending messages, entering letters
 - b) Dial and answer calls
 - c) Real time clock display
 - d) A convenient and concise user interface, you can change the function by swiping your finger on the screen. A standard 12-key input method for entering messages.

You can get the required Arduino phone code from the Github link below.

<https://github.com/Seeed-Studio/ArduinoPhone>

More information is available at the link below

<https://www.instructables.com/ArduinoPhone/#:~:text=1%20Step%201%3A%20Preparing%20Stuffs.%20At%20the%20ove ry.3D%20printer%20as%20shown%20below.%20Then%2C...%20More%20>

Important Dates	: Submit	Task to Complete	Pts
21 April 2023	: Phase 1	Submission of the extended abstract with a complete diagram of the smart wireless communication device. Between 3-4 A4 pages, single line spacing, 12 point size Times New Roman characters and 1.5 cm margins on all sides with 0 gutter space.	2
18 May 2023	: Phase2	Submission of the final copy of the white paper. Between 3-4 A4 pages, single line spacing, 12 point size Times New Roman characters and 1.5 cm margins on all sides with 0 gutter space.	3