Project Overview

Introduction

Nowadays, technology is changing with each passing day. The size of electronic components is becoming smaller, and consequently electronic products become smaller. As for the projector, the size is no longer a restriction on usage. The application of the projector is not anymore stationary, but became portable. The projector can also be embedded into other systems and become multi-function product.

Since projector is widely used in different fields, the demand of projector is large, especially the portable projector which is still developing and the potential of application is wide. Therefore, portable projector is valuable to develop.

Aim and Objectives

In our project, we have to design a handheld multi-media device embed with portable projector. We will focus on GSM, GPS, video player and photo viewer functions and integrated into our product. Therefore, the projector is not only used to connect with other audio and visual devices, but also to support its own functions.

Mobile phone becomes a useful communication device. Especially in Hong Kong, every citizen owns a mobile phone. Therefore, we decide to implement GSM function into our product.

GPS technology has become common part of modern day devices that range from boat mapping systems and car navigation systems to modern computers or mobile phones. This technology helps people to explore new place and determine their position in the world. GPS will become an essential function of portable device in the future, so we will implement it into our product.

People like to share their daily interesting point through videos or photos. Therefore, Video player and photo viewer become an essential function in handheld devices. For this reason, those are basic functions of our product.

Design Phase

We looked into considered two different solutions one is using Microchip PIC32 microprocessor and the other is using Samsung ARM9 processor.

The Microchip PIC32 microprocessor can provide picture viewer, mobile phone, GPS and audio player functions. The advantage of choosing this microprocessor is that it provides a user friendly IDE tools and a powerful software library.

The Samsung ARM9 processor, includes picture viewer, mobile phone, GPS, video and audio player functions. It can install operating systems such as Windows CE and Linux. These OS provide graphical interface, built-in drivers and software libraries, which can help us to shorten the development time compared to that of microprocessor.

Methodology

Hardware Block Diagram for Microchip PIC32 Microprocessor

Hardware Block Diagram for Samsung S3C2440 ARM9 Processor