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Gambling Screen

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# Introduction

The document is put together as an overview for Team Gamblers’ Spring 2024 senior design project. The document will represent a high level technical overview detailing the full design process and the technology used in the device. Also covered will be the features and interface(s). The system requirements will be discussed in detail in section (3). More abstract drawings will be included to show the overall design.

# Problem Statement and Proposed Solution

Currently, the sports betting industry is estimated to be worth $81.7 billion dollars raking the interest of 46% of Americans – 106 million people – with 7.3 million being daily bettors according to Nielsen. This industry is only expected to grow and continue increasing its market and associated industries. These services include fantasy drafts, statistics-tracking apps, and advertising, where a 30 second commercial in Super Bowl LVII reportedly cost 7 million. It is known to many that this is an industry that will continue to grow, therefore, it is crucial that user experience grows alongside it. Presently, sports betting and broadcasting are not synchronized, for example, a commentator might give their own prediction, or certain player statistics may be shown. However, this might not necessarily translate into an user’s own prediction or bet, moving the user’s attention away from the television screen, inconveniencing their experience. As users continuously refresh their phone apps to track their bets, they miss out on the actual games being played. As a solution to this issue, our team aims to produce a product that updates in real time while providing an easy to reference interface. No longer will a viewer have to choose between giving their attention to the broadcast versus tracking their wagers placed.

# System Requirements

Give the overall system requirements. Meeting these requirements will make your

system solve the problem you are trying to solve.

The system requirements are the most important part of this document. These

requirements guide you design decisions. The can come from multiple sources:

Features that your product has to have.

How the product is used and installed.

Safety issues related to the product.

Some things to think about are:

What capabilities are required of the embedded intelligence?

How is the device powered? If it runs on batteries, what kinds of batteries are

used, how long should the system be able to run on the batteries, etc? How does

the user replace/recharge the batteries?

There are lots of requirements related to wireless interfaces. How many devices

need to be supported? What range is required?

What are the user interfaces?

How is the system installed and used?

If you project involves voltages and or currents that may be dangerous, what are

safety requirements associated with your system.

What are the mechanical requirements, such as weight, size, etc.

# System Block Diagram

## Overall System:

I find it easiest to proceed with making design decisions by first breaking the system

down into subsystems. Note this can be an iterative process. For example, I might

choose to group the user interface (input and output) into a single subsystem. While this

might make sense, if there are multiple outputs and inputs (such as an on-device

display and a smart phone interface display) it might make sense to have separate

blocks for different parts of the user interface.

## Subsystem1 and Interface Requirements:

The requirements of each subsystem or major interface are described here by

subsystem. These lower level requirements support the overall system requirements.

Note that major interfaces (such as a wireless interface) should be described like any

other subsystem. Don’t forget that there will be software as well has hardware in many

of the subsystems, and that software will have requirements.

The system requirements must be met by the system as a whole, and those

requirements naturally migrate to subsystems that comprise the system. Depending on

the system decomposition, requirements may be met entirely by a subsystem, or

through the combined actions of multiple subsystems.

## Subsystem2 and Interface Requirements:

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## Future Enhancement Requirements

The system requirements must be met by the system as a whole, and those

requirements naturally migrate to subsystems that comprise the system. Depending on

the system decomposition, requirements may be met entirely by a subsystem, or

through the combined actions of multiple subsystems.

# High Level Design Decisions

Broken down by subsystem and major interface, this section presents your high level

design of each subsystem or interface. Your design decisions should be guided by

choosing options which best support you system requirements.

For each subsystem or major interface, you should describe the function or interface

and the devices that will be used to realize the functions performed by the subsystem.

The decision level is not to the level of a complete schematic, but it is necessary to

identify the major components that will be used because those choices affect other

design decisions.

If a subsystem contains embedded intelligence, the requirements listed earlier should

allow you to specify a microcontroller (based again on requirements like cost, power

(electrical), power (processing power), I/O and interface requirements, etc.)

Keep in mind related issues, like how each subsystem is going to be powered, how

clocked devices will get required clocks, etc.

# Major Component Costs

**Screen**

[**https://www.pcliquidations.com/p102412-dell-p2017h-20-led?msclkid=7c876a50232e18f2ebac0f34d5ff4b4f&utm\_source=bing&utm\_medium=cpc&utm\_campaign=OMG%20(L)%20%7C%20CPCS\_PCLiq-Shopping&utm\_term=4581046492278425&utm\_content=Products**](https://www.pcliquidations.com/p102412-dell-p2017h-20-led?msclkid=7c876a50232e18f2ebac0f34d5ff4b4f&utm_source=bing&utm_medium=cpc&utm_campaign=OMG%20(L)%20%7C%20CPCS_PCLiq-Shopping&utm_term=4581046492278425&utm_content=Products) **$60**

**ESP 32 x3** [**https://www.amazon.com/Teyleten-Robot-ESP-WROOM-32-Development-Microcontroller/dp/B08246MCL5/ref=asc\_df\_B08246MCL5&mcid=1b134290eb803e21bd193c6d842b87db?tag=bingshoppinga-20&linkCode=df0&hvadid=79989585930715&hvnetw=o&hvqmt=e&hvbmt=be&hvdev=c&hvlocint=&hvlocphy=&hvtargid=pla-4583589115602919&th=1**](https://www.amazon.com/Teyleten-Robot-ESP-WROOM-32-Development-Microcontroller/dp/B08246MCL5/ref=asc_df_B08246MCL5&mcid=1b134290eb803e21bd193c6d842b87db?tag=bingshoppinga-20&linkCode=df0&hvadid=79989585930715&hvnetw=o&hvqmt=e&hvbmt=be&hvdev=c&hvlocint=&hvlocphy=&hvtargid=pla-4583589115602919&th=1) **$20**

**Sound Bar**

[**https://www.amazon.com/BESTISAN-Bluetooth-Adjustable-Switching-Mode%EF%BC%8CReset/dp/B0CDR79G9M/ref=sr\_1\_30?keywords=18%2Binch%2Bsound%2Bbar&qid=1701115974&sr=8-30&th=1**](https://www.amazon.com/BESTISAN-Bluetooth-Adjustable-Switching-Mode%EF%BC%8CReset/dp/B0CDR79G9M/ref=sr_1_30?keywords=18%2Binch%2Bsound%2Bbar&qid=1701115974&sr=8-30&th=1) **$40**

**LED Strip**

[**https://www.jameco.com/z/1138-Adafruit-Industries-Adafruit-NeoPixel-Digital-RGB-LED-Weatherproof-White-Strip-60-LED-1m\_2212015.html?CID=BINGMC&msclkid=8bcabbaaaf381d4522c3dece52f1160a**](https://www.jameco.com/z/1138-Adafruit-Industries-Adafruit-NeoPixel-Digital-RGB-LED-Weatherproof-White-Strip-60-LED-1m_2212015.html?CID=BINGMC&msclkid=8bcabbaaaf381d4522c3dece52f1160a) **$35/per meter**

**Circuit Board $50**

# Conclusions

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