**PROBLEM STATEMENT**

**Current Problem:** There is a lack of a portable, versatile and affordable scoreboard available on the market.

The spectrum of currently available products ranges from the $20 tabletop card scoreboards to the pricier $500 and above fully digital tabletop scoreboard.

**Current Offerings**

**NEEDS ASSESSMENT**

From stakeholder consultation we found a few requirements:

- Portable
- Visible to all on field
- Affordable
- Easy to set up
- Adaptable to different sports
- Easy to use

From these, we came up with these ranked solutions:

<table>
<thead>
<tr>
<th>No.</th>
<th>Feature</th>
<th>Description</th>
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</thead>
<tbody>
<tr>
<td>1</td>
<td>Portable</td>
<td>The scoreboard is lightweight and can be carried by one person.</td>
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<tr>
<td>2</td>
<td>Visible to all on field</td>
<td>The scoreboard is clearly visible from all sides of the field.</td>
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<tr>
<td>3</td>
<td>Affordable</td>
<td>The scoreboard is priced below $100.</td>
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<td>4</td>
<td>Easy to set up</td>
<td>The scoreboard can be set up in minutes without any tools.</td>
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<tr>
<td>5</td>
<td>Adaptable to different sports</td>
<td>The scoreboard can be used for various sports.</td>
</tr>
<tr>
<td>6</td>
<td>Easy to use</td>
<td>The scoreboard is user-friendly and intuitive.</td>
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</table>

**OUR SOLUTION**

To ensure the final prototype functions as intended we chose a solution which meets the stakeholder criteria.

**CAD model of our solution:**

**LED Display**

- Home and guest score can be set from 0 – 99 and can be incremented and decremented
- Time can be set and automatically counts up or down, can be stopped, started, and reset to any time
- Period display for up to four periods
- Build from LED strips cut and soldered into 14 segment displays. Powered via Arduino

**Integrated Inflation System**

- Built in air compressor with separate power system maintains structure inflated without human intervention
- Separate control system to inflate and pack screen
- 3D printed box to house electronics and have easy access to switches

**Microcontroller**

- Arduino MCU controls display LED segments
- Connected HC-06 bluetooth module to communicate with android app
- Android commands sent via Serial communication to Arduino
- Receives android commands as string messages to update Scoreport LED display accordingly
- Utilizes RGBW NeoPixel library and custom 14-segment value matrix

**FUTURE ITERATIONS**

Some of the most important features that will be added to ScorePort in the future are:

- One power system
  - Inflation and operation on one power source
- Custom built PCB to incorporate built in bluetooth module
- Additional LED segments to display shots, possession and other extraneous information
- Native iOS App (or cross platform compatibility)
- Sensor input for automatic goal recognition

**MOBILE APP**

**Mobile App**

- App developed in Native Android using Android Studio and Kotlin programming language (XML for interface)
- Bluetooth connection for control of all LED digits
- Time and score controlled via mobile app
- Options for setting period length and changing count up/down mode

**Android App User Interface**

**Project Github repository:**

- [Project Github repository link]