The Pittsburgh Radio Rosary and Consecration, Inc. provides a daily 7 pm scriptural Rosary and Sacred Heart prayer of Consecration radio broadcast on WKHB at 620 am and transmits on 92.3, 94.1, and 102.1 FM. This broadcast, a tradition for over 50 years in the Pittsburgh region, has been a source of spiritual connection and unity. In April 2022, PITTRRC assumed the ministry's rights and responsibility; now, we are ready to take it to new heights. PITTRRC created a new audio production in July 2022, and we want to enhance the ministry with a unique prayer-based interactive website and YouTube channel. This technological capability with the website will allow anyone to pray together or independently, educate, and communicate with one another in faith. This website would be unconventional by design, offer interactive prayer, and go beyond a standard text-only WordPress site.

This project involves a continuation of improving website development:

Technical Aspects: Full-Stack Web Development (Django Framework), Database Management (MySQL currently), and Linux System Administration/Networking (Ubuntu Server 20.04, NGINX, etc.)

Create a software program to achieve a radio station format to broadcast the Rosary and future music for the Praying Together page.

Create a cross-functional mobile, tablet, and desktop app, ensuring responsive design on all browsers.

Restructure the Praying Independently pages for content production to sync with the mobile app. Redesign the pages to ensure consistency on all platforms and bring the Rosary beads to a full-size page capacity on a desktop/tablet view. It is also consistent with creating an eventual YouTube channel mirroring the section, having the same consistent layout in the video, and is beneficial for participating in a classroom setting.

Create the Bulletin Board page to present itself as a social media platform for spiritual events and faithful expressions.

Enable safeguards with cybersecurity.

SEO Development

Depending on student interests, this project could utilize a team of 3-4 students, with possible configurations below. Ideally, we would want students who are interested in full-stack web development and content production, as well as any students who have developmental capabilities to expand the uniqueness of this multidimensional site:

Configurations	Config #1 - Separate (Preferred)	Config #2 - Mixed	Config #3 - Systems
Student #1	Front End (HTML/CSS)	Mobile Front/Backend	Frontend (all viewports)
Student #2	Backend-Python (Django)	Desktop Front/Backend	Backend (Django + Javascript)
Student #3	Backend-Javascript	Tablet Front/Backend	Systems (CI/CD, NGINX, Database - MySQL, Security)
Student #4 (optional)	Support (SEO, Server Admin, CI/CD)	Backend Systems (Email, SEO, Blog, Radio)	Content Production (YouTube, Radio/Music, Marketing)

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The pittrrc.org website development was initiated in 2022 with Ivan Bondarenko, CS Pitt Graduate, Winter 2024. Four main pages were conceived for only the desktop view; final work is needed to complete the code application for the pages and mobile app.

Pages:

1. Praying Together – Page 1

   Intent: Participants join a synched prayer at 7 pm. The Rosary broadcast repeats at 7 pm for each of the six US time zones, and in the future, they will have the opportunity to hear faith-based music between the broadcasts for the other 24 hours.

   Challenges: Rebroadcasting the live station feed from the station website was not dependable and was delayed from the actual broadcast, so participants were not praying together. We could not expand to six US time zones with a simulated live feed. Currently, if the bead is selected, a recording will start from the beginning at any given time within the hour, not providing a live feed effect.

   Solution Needed: The website software and the scheduled radio station program software should sync with the exact launch time. A time-based program similar to radio station software is needed to deliver the Rosary and music. When a participant clicks on the bead at 7:12, they will enter the broadcast exactly when it started at 7:00, and the same with music. This will make the appearance on page one to be a true radio station.

2. Praying Independently – Page 2

   Intent: Participants can pray independently, as the site offers the broadcast audio recordings of each of the four Rosary Mysteries and the Sacred Heart Prayer of Consecration synced to illuminating Rosary Beads that change with each prayer leading toward completion. Ivan completed the coding for syncing the Mysteries with the beads. Restructure the Praying Independently pages for content production to sync with the mobile app. Redesign the pages to ensure consistency on all platforms and bring the Rosary beads to a full-size page capacity on a desktop/tablet view. It is also consistent with creating an eventual YouTube channel mirroring the section with the same consistent layout in the video. This capability to pray with the website allows a religion class to pray together from a classroom projector. The size of the Rosary bead view needs to increase to immerse the participant visually.

Challenges: How to increase the Rosary bead size. The Mysteries and Sacred Heart selection bar restricts the beads from expanding and needs a separate page created so as not to limit the size of the Rosary Beads. Create a selection bar on the main page, which takes the participant to one of the Mysteries or Sacred Heart Prayer. See pages created for the mobile application as an example. This code-created potential allows each Mystery and Sacred Heart Prayer to be eventually displayed as a YouTube page, creating a new PITTRRC YouTube channel. Also, the main bead for each Mystery currently does not pause.

Solution Needed: Create a new main selection page for the singular prayer page. Each subpage has a return button to return to the main selection page. Taking the selection bar out allows the Rosary Beads to increase to full size on the page. This will also help with consistent page display for mobile and tablet displays and scrolling.

3. Bulletin Board – Page 4

Intent: Participants within the broadcasting region can learn about upcoming spiritual events and post faithful expressions. This information would be available for all ages. There is a regional social media post called "Yinzer Catholics," which is presented as a narrowcast for young adults and gives an example of how this section display should appear in a current display setting.

Challenges: Understanding how the posts are made with coding and whether there is a way to screen for authenticity to eliminate the time spent reviewing them before posting.

Solution Needed: Redesign the page to a social media format that is visually friendly, functional, and secure, similar to what is found on "Yinzer Catholics."

4. Overall Site Items—These items listed below affect the website's functionality, appearance, security, and SEO.

1. Functionality:

   a. Create a cross-functional mobile, tablet, and desktop app.

   b. Scroll-Snap-Align locks the four main pages on the desktop to avoid pages merging when scrolling.

   c. Viewport—Responsive design ensures consistency from mobile to tablet to desktop. Consider all browsers. Polish the layout for a proper final appearance. Eliminate sizing issues of fixed objects on the site.

2. Enable safeguards with cybersecurity. Cyberattacks to take down a religious site could occur more frequently.

3. SEO - Bringing awareness through keyword searching. The goal is to achieve a high ranking through various classifications relating to interactive prayers for the Rosary and the prayer of Consecration, being Catholic and Christian, and finding spirituality that can help guide your life peacefully.

4. Better build environment (CI/CD) – currently have an installer script that downloads all the files to your local machine, and changes must be scp'd to the server and restarted. This is cumbersome and requires great care to not break anything. Figuring out a build system and using Git would be ideal, or another approach should be considered for further development work.

5. Better database – currently, the default database (MySQL) from Django is being used, which is just a file and not a real server and should be converted to a real database setup. I tried using

PostgreSQL before on the server but found compatibility issues with the ARM CPU architecture (Odroid C4 SBC running Ubuntu Server 20.04).

6. Dashboard – a dashboard should be created for John/Administrators to view website statistics or make changes. Currently the default Django dashboard is available for handling database models but lacks some specific functionality. Similarly, this dashboard is available to parishioners who will be uploading their sermons, video files, blog posts, etc.

7. Blog System – very basic blog system implemented but could be greatly improved. Things like custom URL slugs (pages), sub-chains for messages are not supported, no CRUD methods available for users, and search functionality should be developed.

8. Emailing system – basic email system is configured. Things like mass marketing emails, confirmation emails, or marketing emails from parishioners should be implemented.

9. User registration and authentication is implemented (handled by Django backend), but we may want an easier system for allowing additional parishioners to create accounts and post