Objectives of the Project:

1. Design and Implement a Gimbal-Based Camera System:Develop a hardware platform comprising a gimbal mechanism capable of supporting and manipulating a camera in real-time.

2. Bluetooth Integration: Establish a reliable Bluetooth connection between the Android phone and the Raspberry Pi to facilitate wireless communication for camera control.

3. Utilize Smartphone Gyroscope Data: Harness the gyroscope data from the Android phone to enable intuitive control of the camera's movements, allowing users to manipulate the camera orientation by tilting and rotating their phone.

4. Servo Motor Control: Implement precise control algorithms on the Raspberry Pi to interpret gyroscope data and translate it into servo motor movements for adjusting the camera's pan and tilt angles.

5. Live Video Streaming:Enable real-time video streaming from the camera to the Android phone over the Bluetooth connection, providing users with a live feed of the camera's perspective for monitoring and remote viewing purposes.

6. User-Friendly Interface:Develop an intuitive Android app interface that allows users to easily connect to the camera system, control camera movements, and view the live video stream, ensuring a seamless user experience.

7. Performance Optimization: Fine-tune the system parameters, optimize communication protocols, and enhance servo motor control algorithms to maximize system responsiveness, stability, and efficiency.

8. Documentation and Presentation: Compile comprehensive documentation detailing the project's design, implementation, testing procedures, and results. Additionally, prepare a presentation to effectively communicate the project's objectives, methodologies, and outcomes to stakeholders and peers.