Week 1: Setup and Initial Software Development

- **Day 1-2:**
  - Set up the Raspberry Pi with the necessary software (Python, libraries).
  - Install required libraries (`face_recognition`, `OpenCV`, `NumPy`).
- **Day 3-4:**
  - Transfer dataset and datatest folders to the Raspberry Pi.
  - Develop and test basic face recognition code with your dataset.
- **Day 5-7:**
  - Train the face recognition model on your dataset.
  - Test and validate basic face recognition functionality.

Week 2: Implement Core Features

- **Day 1-3:**
  - Implement adaptive face recognition (learning over time).
  - Ensure the system can recognize and continuously learn from new images.
- **Day 4-7:**
  - Implement multiple authorized faces functionality.
  - Test and validate this feature with yo[↓]'ataset.

Week 3: Implement Enhancements

- **Day 1-3:**
  - Add emotion detection (software-only).
  - Use pre-trained models for emotion detection and integrate with face recognition.
- **Day 4-7:**
  - Implement mask detection.
  - Integrate mask detection with the face recognition system.

Week 4: Advanced Preprocessing and Testing

- **Day 1-3:**
  - Implement lighting condition adaptation.
  - Test how the system handles various lighting conditions.
- **Day 4-7:**
  - Implement recognition with varying distance and scaling.
  - Ensure the system can handle faces at different distances and scales.

Week 5: Anti-Spoofing Mechanisms

- **Day 1-3:**
  - Implement texture-based detection.
  - Train or configure a classifier for texture analysis.
- **Day 4-7:**
  - Implement depth estimation for 3D face detection.
  - Test the depth estimation with samp↓ages.

Week 6: Real-Time Notifications

- **Day 1-3:**
  - Set up real-time notifications.
  - Implement email notifications and text-to-speech on your laptop or phone.
- **Day 4-7:**
  - Test the notification system to ensure it works as expected.
  - Make any necessary adjustments.

Week 7: Integration and Testing

- **Day 1-3:**
  - Integrate all features into a single cohesive system.
  - Perform thorough testing to ensure all features work together.
- **Day 4-7:**
  - Debug and fix any issues discovered during integration.
  - Prepare the system for hardware integration.

Week 8: Final Hardware Integration

- **Day 1-3:**
  - Set up the hardware (relay module, solenoid lock, etc.).
  - Integrate the hardware with the Raspberry Pi and face recognition system.
- **Day 4-5:**
  - Test the entire system with hardware to ensure functionality.
  - Make any final adjustments.