Self-parking Feature - Crystal Diamond and Crystal Sapphire:

This involves developing a system where the car can park itself without human intervention. This feature likely involves complex algorithms for navigation, obstacle detection, and precisely maneuvering the car to the parking spot. The risk associated with such a feature is relatively high due to the potential safety implications if the system fails. This is likely a large project as developing the feature involves significant technical complexity which includes designing algorithms for vehicle navigation, sensor integration such as cameras, LiDAR, ultrasonic sensors, obstacle detection, path planning, and precise maneuvering. The size of the project team required to develop the self-parking feature could be significant. It would typically involve software engineers, hardware engineers, algorithm specialists, testers, and likely domain experts in automotive technology and artificial intelligence. The time required to plan, develop, test, and deploy a self-parking feature can be considerable. Due to the potential risk to human life and the large size of the project, a more formal process such as **crystal diamond and crystal sapphire,** is the most suitable for this feature.

Automatic Lane Changing Feature - Crystal Orange:

This feature involves developing technology that allows the car to change lanes automatically based on the driver's turn signal. While this feature is less complex compared to self-parking, it still requires sophisticated sensor integration and real-time decision-making capabilities. The size of the project team required for the automatic lane changing feature would likely be moderate. It would involve software engineers specializing in AI and robotics, sensor integration experts, vehicle control engineers, and testers. Developing the automatic lane changing feature would require a significant development timeline but may not extend as long as larger scale projects. The duration would be substantial enough to address the technical challenges but may be shorter compared to more extensive autonomous driving features. The risk associated with this feature is moderate. The risk is primarily related to safety and precision. The automatic lane change feature contributes to the overall usability and attractiveness of driverless cars. While not critical for survival, this feature is important for generating revenue and maintaining the profitability of driverless car technology. It enhances the value of autonomous vehicles, but isn't necessary for survival which makes it an essential money feature. For this type of feature, a methodology like **Crystal Orange** specifically E40 could be suitable. Crystal Orange is tailored for projects with moderate risk and requires the involvement of 21 - 40 people, where the focus is on balancing flexibility with some level of formality. It allows for adaptability in development and also provides enough structure to ensure progress and quality.

Honking the Horn - Crystal Clear:

Implementing a feature where the car autonomously honks to warn pedestrians or other drivers involves integrating detection systems with communication functionalities. The complexity of this feature is relatively lower compared to the previous two, and the risk involved is primarily related to communication accuracy and social acceptance of the system's behavior. While not as extensive as larger-scale autonomous driving functionalities such as self-parking, the honking feature requires dedicated efforts in software development, sensor integration, and safety engineering to ensure its effectiveness and reliability. The horn honking feature can be classified as a discretionary money feature because it warns pedestrians and other drivers. It can provide an advantage by enhancing safety and communication in driverless cars. While valuable, this feature may not be essential for the basic operation or profitability of the organization. It represents an enhancement that contributes to the overall competitiveness of the product. For a feature like this, a methodology like **Crystal Clear** where 1 - 6 people would be involved would be appropriate, specifically D6. Crystal Clear emphasizes simplicity, frequent communication, and close collaboration among team members. This methodology is ideal for low-risk projects such as horn-honking where adaptability and responsiveness are key.