The increase in the use of plastic payment cards in developing nations would surely lead to more Plastic fraud, Thus, there is a there is a need to develop modern more secure systems that could be used to enhance the security of the inherent plastic cards being used today. This project proposes a system that uses the One-Time Password technology to prevent plastic fraud. The project aims at the risk associated with the current use of plastic card increases. The design and the implementation of the One- Time Password serves as an additional means of authentication to the already in use static PIN. The project also provides recommendation to both banks and customers in other to make the use of plastic payment card more secure, as these cards will become more common with introduction of the cashless economy policy by the Central Bank of Nigeria.