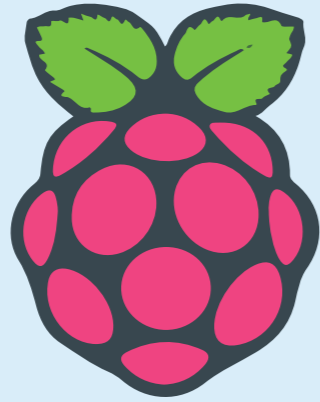


# Home security gone smart

Smart home devices have become a big part of today's innovation and research fields. This allows the individual to enhance their home environment and improve their way of living. The following project introduces a solution for home monitoring using a camera equipped with a motion detection software. The solution is making use of emerging technologies such as Raspberry Pi, Firebase, React and Progressive Web Apps. The aim is to provide the user with a safer environment and ensure that their home is safe at any given time.



The camera will be attached to a Raspberry Pi, which will be used to handle the events triggered by any motion within the premises. Upon received an even the Raspberry Pi will send a request to the server, to determine if the house owner is at home or away. If the owner is away, then the image will be forwarded to the server.



Firestore is a cloud-based platform, which allows the development of web applications, by eliminating the need for server-side programming, providing smoother experience during the development process. The platform will be used to receive data, store it, process it and notify the user of any changes within the premises of their home.



The camera will be equipped with a motion detection software, maintaining a constant stream of data, and use it to compare frame by frame, if the frame has too many pixels changed, then an event is triggered, and an image is captured.

React is a single page application library, capable of re-rendering the content of the web page without calling the server to obtain new HTML, providing smoother experience and faster load time. The library provides high-level flexibility and combined with the newer version of JavaScript, it can deliver high performance without requiring high-level coding. This technology will be used to develop the website for the application.

Progressive web application is a growing technology, providing the user with a choice, to install a web page, as a mobile application on their phone. Those apps act and respond as a webpage, but instead of running them from the browser, you can access them on your phone as a normal mobile application. This provides the end user with the opportunity to access data with the same user interface, from any given device. The technology makes use of HTTPS protocols to provide better security.

