# An Integrated Electronic Medical Dispensing, Diary and Locator Device to Support Memory Impaired Independent Living

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Alzheimer’s is a devastating and debilitating condition which affects humans, particularly in their senior years. It causes loss of short-term memory which results in disorientation and creates difficulties in being able to live independently. It also has a huge impact on the family and persons responsible for the care and support of the person affected. Apart from the frustration of ‘losing’ personal items and forgetting appointments on an everyday basis, it also impacts deeply on the daily medical regime of the person. With this background in mind it was decided to design a device which would reduce the frustration of ‘losing’ things on a regular basis and to support memory and independent living by assisting in the dispensing of drugs. It was anticipated that the only practical solution to support independent living would have to encompass artificial memory to assist with drug dispensing, an electronic diary and a personal item locator. It would be ideal if this device could be controlled remotely. A number of designs were considered and the final device incorporated, Raspberry Pi and Arduino Boards and a custom made PCB which would integrate the functions of all of the component parts. The device also needed to be programmed to carry out its functions which necessitated having to develop the software code and algorithm to achieve functionality. The finished product is not only functional in the key aspects of drug dispensing, diary alert and personal item location but can also provide real-time information to the carer and interface with the patient through the device and the television. The device has considerable commercial potential and will make a significant impact in supporting independent living with memory impaired patients.

**Awards Won:**

Second Award of $2,000