

CHAPTER 4

IMPLEMENTATION AND RESULT

4.1 Implementation

Implementation is the realization, application, or execution of a plan, idea, model, design, specification, standard, algorithm, or policy. After done the hardware and software, combine to complete the system.

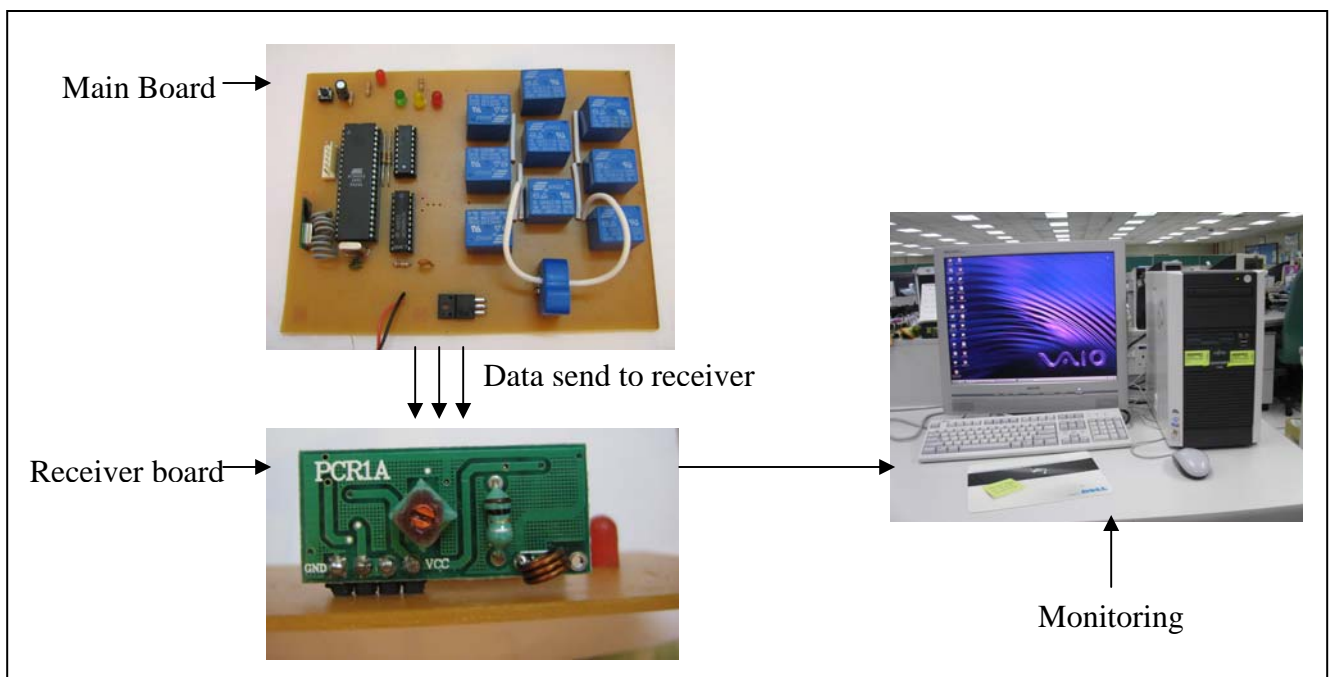


Figure 4.0: Complete system

After implement the hardware and software, the construction of the model of the system on which Automatic Electrical Failure Detection is to be performed is a key element in the electrical system with wireless. The model to describe the system at three different parts: main board, receiver board and PC. Main board's function to analysis the current and process by the microcontroller with step sequence have be program to control the relay switch to cutoff the channel when electrical failure is happen. After analysis the current, it will encoder and send the data by transmitter to receiver. When the receiver receive the data from main board, the receiver will decoder the data to original form and send to PC by serial port.

The system require to be tested before the project to the end, one of the configurations is hardware Radio Frequency module and Transmitter units is need to be tested for the maximum distance, different condition and situation. All the software that was developed for switching control will also be tested for different condition and reliability issue. Other issues such as microcontroller stability are also require to be tested before the project can be considered done.

4.2 Distances between Transmitter and Receiver

Maximum distance from transmitter send data to receiver is 100 meter but in actual testing is only in 20 meter because this Radio Frequency module is sensitive to interference source. When happens interference between transmitter and receiver is will cause data can not receive by receiver, this what we call is unstable system performance. The system reliability is depends on environment especially for wireless system. If want to solve this problem, the Radio frequency module have to buy which type is not easy sensitive with interference but it is too expensive and not in budget. Anyway this project still achieve to the scope with analyze current and send it back to computer based station from place A to place B.

4.3 Analyze current from place A (Transmitter) to place B (receiver)

Analyze current from place A to place B is one of the system require to make sure the system can analyze correct data as expected.

Table 4.0: Result of analyze current from place A to place B

Channel (CH)	Current (mA)	Time (PM)
CH1	122	10:22:48
CH2	124	10:22:54
CH3	122	10:22:54
CH1	124	10:22:56
CH2	126	10:23:00
CH3	126	10:23:02
CH1	126	10:23:06
CH3	130	10:23:12
CH2	126	10:23:18
CH3	128	10:23:22
CH1	128	10:23:24
CH2	126	10:23:28
CH3	126	10:23:30
CH1	130	10:23:34
CH2	126	10:23:36
CH3	130	10:23:40

From the Table 4.0, the result of analyze current show the system is stable and can received data from place A to place B. The current is stable and no any electrical failures happen. The time was show the sensor analyze current in every 2 second for each channel in the same time can know when the system is down. (Refer to Figure 4.1)



Figure 4.1: Output current and graph

The system cutoff the channel 1 because happen over current. Refer to figure 4.2 Channel 2 and channel 3 still keep going but the channel 1 is already stop because system already cutoff the channel1 when happen high current above 5 ampere.

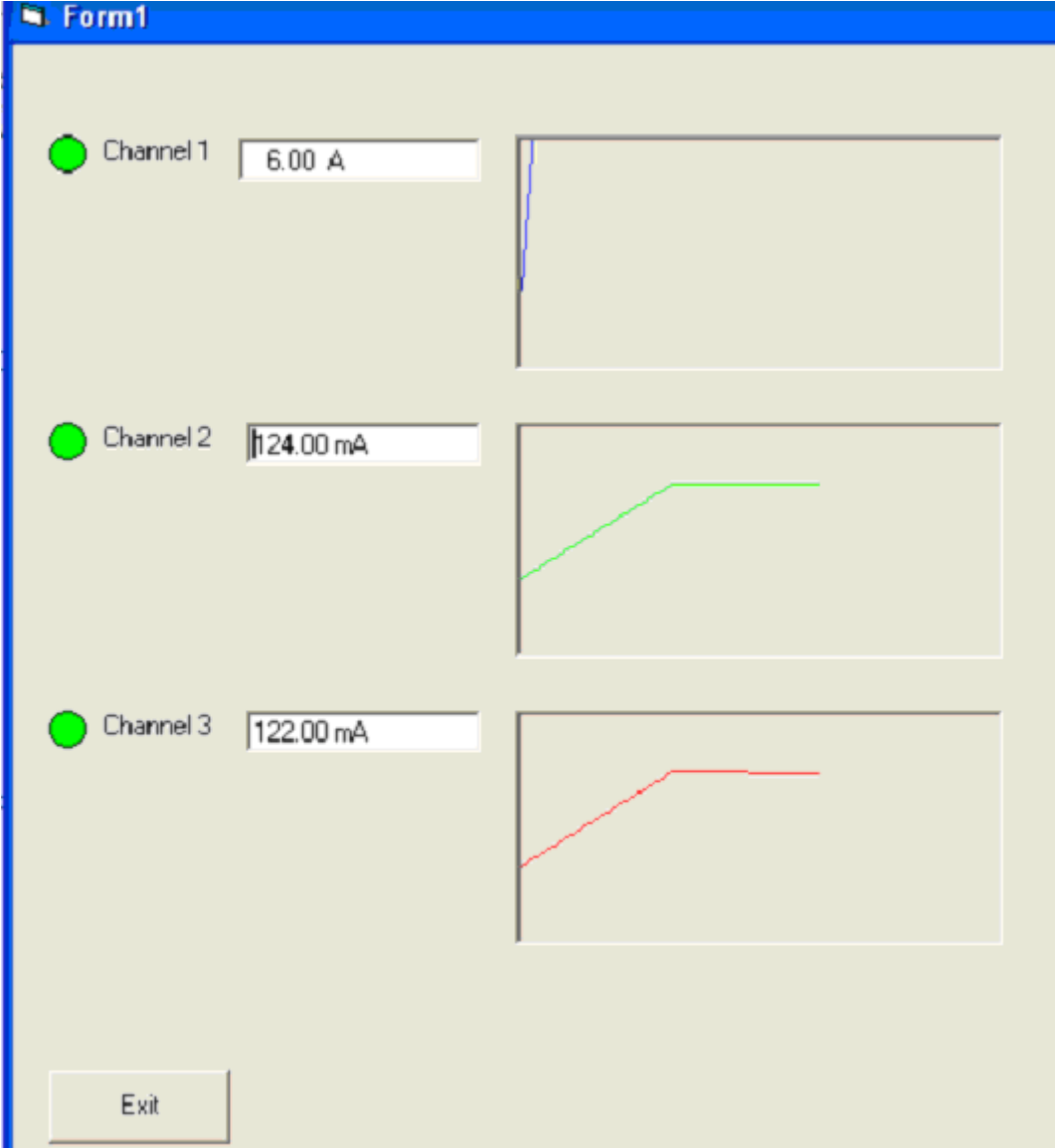


Figure 4.2: Channel 1 happen high current and the system cutoff the channel 1.