

For example, when the capacity of the battery is $\frac{1}{2}$ the output current which is 0.145A (145mA), except that the current consumed by the node from 4.47mA to 28.8mA, the remaining current is about 116.2mA to 140.53mA which charges into AA batteries. So the time to fully charge a battery with a capacity of 450mAh is about 3 to 6 hours as in Table 3 and Sensor Node can run continuously about 15.6 hours to 11 days as analyzed above.

4. Conclusion

The proposed algorithm builds a formula on gateway to calculate the sleep time and applies power reduction techniques for the Node Sensor that increases the lifetime of the Node Sensor. The study also applies solar panels to the system to estimate the battery life. Sensor Node consumes 2.84% of battery power compared to 12.52% of reading data in a given cycle in 2 hours. Transmission results are 100% successful rate with distances less than 500m. The sensor node consumes 4.47mAh to 28.8mA, corresponding to one AA battery that can sustain the node from 15.6 hours to 11 days.

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