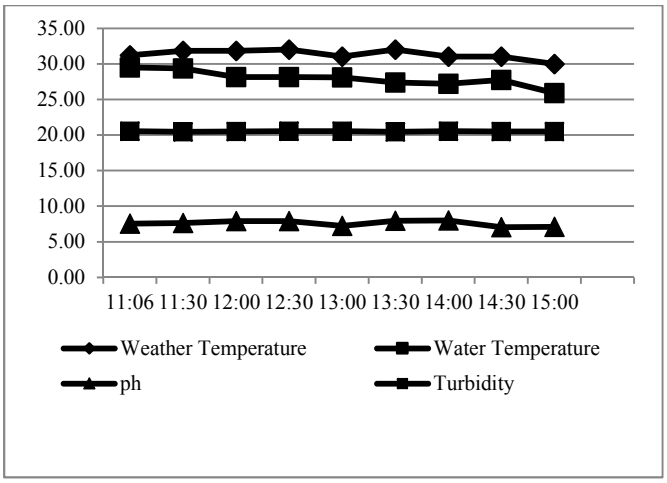

Fig. 7. The reading data from the sensors at Limboto Lake testing

The addition of a fan inside the casing of the prototype is necessary to reduce heat inside the casing. In addition, the special casing of the turbidity sensor to protect water from entering the cap of the sensors would need to be improved.

ACKNOWLEDGEMENT

High appreciation to Ministry of research and higher education (RISTEK DIKTI) of Indonesian Government in funding this research and Publication.

REFERENCES

[1] Indonesia. Indonesian National Institute of Aeronautics and Space, "Pedoman Pemantauan Perubahan Luas Permukaan Air Danau Menggunakan Data Satelit Penginderaan Jauh. 2015. [Online]. Available:http://spbn.pusfatja.lapan.go.id/documents/716/download [Accessed: Aug 10, 2018].

[2] Y.Y. Maulana, "Integrated Real-time water quality monitoring", Jurnal Elektronika dan Telekomunikasi., vol.15, no.1, pp. 23-24, June 2013.

[3] Indonesia. Ministry of Environment and Forestry Republic of Indonesia. "KLHK Pulihkan 15 Danau Prioritas Nasional". [Online]. Availble: http://ppid.menlhk.go.id/siaran_pers/browse/608. [Access on 1st August 2018].

[4] Hasim, F. Kasim and Y.Koniyo, "Peta Kesesuaian Lokasi Karamba Jaring Apung Untuk Pengembangan Perikanan Budidaya Ramah Lingkungan dengan aplikasi SIG Di Danau Limboto". Research Final Report, Fakultas of Fishery and Marine Scinece. Universitas Negeri Gorontalo. 2015.

[5] K.S Adu-Manu, C.Tapparelo, W. Heinzelman, "Water Quality Monitoring Using Wireless Sensor Networks: Current Trend and Future-Research Directions". ACM Trans.Sen.Netw., vol 13, no. 1, Jan 2017.

[6] F.Lihawa, M.Mahmud, "Evaluasi Karateristik Kulitas Air Danau Limboto". Jurnal Pengelolaan Sumberdaya Alam dan Lingkungan, Vol.7, No.3, pp: 260-266. 2017

[7] D.Wijaya, A.A.Sentosa and D.W.H. Tjahjo,," Kajian Kualitas Perairan dan Potensi Produksi Sumber Daya Ikan di Danau Batur Bali". Proc. of Seminar Nasional Limnologi VI, 16 July 2012, pp 386-399.

[8] B.Trisakti, N.Suwargana, G.Nugroho. "Pemantauan perubahan kualitas danau selama 1990 – 2011 menggunakan citra satelit multi temporal". LAPAN, 2014.

[9] D.Mahmudin, Y. Yulius, R.I.Wijaya and S.Rahardjo. Pengembangan Sistem monitoring Kualitas Air Berbasis TCP-IP pada Perairan Danau Area keramba Jaring Apung, Buku Persepektif Terhadap Kebencanaan Dan Lingkungan di indonesia: Studi kasus dan Pengurangan dampak risikonya. Lembaga Ilmu Pengetahuan Indonesia (LIPI), 2015

[10] Manurung, J.L.Gaol, F. Katarina, D.Ketaren. Kondisi Aktual Danau Toba: Pemantauan Real Time Tinggi Permukaan air dan Kajian Sustainability Danau Toba. Seminar dan Pameran "Save Lake Toba". 2015

[11] dfRobot.com, Ph meter (SKU: SEN0161). [Online]. Available: https://www.dfrobot.com/wiki/index.php/PH_meter(SKU:_SEN01). [Accessed: 5th October 2018].

[12] instructables.com, Calibration of DS18B20 Sensor with arduino uno. Availble: https://www.instructables.com/id/Calibration-of-DS18B20-Sensor-With-Arduino-UNO/.[Accessed: 5th October 2018].

[13] onecoolthingday.com. What is turbidity. Availble: http://www.onecoolthingaday.com/what-is-turbidity. [Accessed: 5th October 2018]