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Low-cost seismic network in Nepali schools

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Nepal is located above the convergent plate boundary between the Indian and Eurasian plates. As a result, it has experienced devastating earthquakes throughout history, claiming lives and causing significant damage. The most recent large Gorkha earthquake in 2015 killed nearly 9'000 people and injured approximately 22'000. It was the critical natural disaster to hit Nepal since the 1934 earthquake. Still, these casualties and damage were far under the expectations. After the Gorkha earthquake, Nepali people are thirsty to know more about earthquakes and vividly seek safety.
Schools play a vital role in the society and are essential elements of the values and culture of the society. A proper education through the schools not only teaches the children but also reaches deep into the community through the parents and teachers. Earthquake education reaching a broad group of the population early in their life is strongly needed, but seismology is not part of curriculum in Nepali schools. Our initiative aims to install low-cost sensor network with the specific focus on education and crowdsourcing.
Beyond teaching adapted classes, we strive for "learning-by-doing" using low-cost seismometers in schools. We plan to start this scheme in the western region by installing inexpensive seismometers in schools and then seek that the example is spread to other areas. We are testing several types of low-cost sensors in the lab before installing one type in schools to record data in real-time. The data will be used to make shake maps, and will also be shared openly. The primary practical challenges we face include load-shedding, limited internet access and mobile phone coverage, high noise-level near cities, no street connection to the countryside and lack of the computers in schools.

We aim to develop several educational activities within this initiative. The class content will be adapted to the Nepali school system, levels and languages and the topic will bear on earthquakes as a process (what creates them, how do we measure them, what can be expected, hazard and risk), as well as on preparedness (how to construct a safer home, what to do in case of an earthquake, what to do after an earthquake, perform earthquake drills). Moreover, the seismometer in each school will allow students to daily check and see whether an earthquake has happened in the region, and what was the respective shaking.