COVID-19 Apps & Systems -

Yet another¹ list of Covid-19 app and system efforts from around the world from and by Oxford HCC

This (originally internal) document sought to organise the major global COVID-19 app and system efforts to gain an understanding of: 1) what problems are being addressed, 2) major privacy and usability challenges posed by these challenges 3) opportunities for HCI, Privacy and HCI researchers to help.

Please request to add comments - thank you! To do this, please either I) request direct access to edit this document, or 2) anonymously provide us feedback through this Google Form.

Apps and Systems by Category

Symptom Crowdsourcing

<u>Apps</u>

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Further ethical and responsibility issues:

Links to other resource aggregations

Why yet another list? - By (re)-creating an aggregation of links we can organise/group/subdivide the list differently than others have, which makes it easier to think about some of these things especially for those of us in a particular domain (HCI/Systems). The drawbacks of course is that it creates information fragmentation, which we are all well aware of; by linking explicitly to the other major open aggregators and drawing from them heavily we hope to keep our list in sync and also bridge them with our own help.

¹ Please see: "**Links to other aggregations**" at the end of this document.

Apps and Systems by Category

Symptom Crowdsourcing

Symptom Crowdsourcing Websites:

- NHS COVID-19 Status Checker form online (website)
- <u>UK Police Lockdown Violation Reporter</u> (websites)
- FluSurvey (website)
- <u>Cov-Clear Survey</u> (website)
- Netherlands & Belgium http://www.grotegriepmeting.nl/ (website)
- USA Flu Near You (website)
- France covidnet.fr: Devenez acteur de la surveillance du Covid19
 - o and Une plateforme pour traiter les patients atteints du COVID-19
- <u>COVID-19-track.com</u> (website)

Symptom Crowdsourcing **Apps**:

- ZOE COVID Symptom Tracker Help slow the spread of COVID-19 (app)
- <u>CoEPI: Community Epidemiology in Action (app)</u>
- MyLog14 (app): Efficiently logging and managing personal data without sacrificing privacy.

Apps

Official State Sanctioned/Government-supported apps²:

These apps seem to offer a mix of functionalities, ranging from Contact Tracing (Singapore, Israel, Indonesia, and South Korea's), Symptom reporting, quarantine enforcement, and health advice:

Nation	App Info	Android	iOS	Functionality	Source
Argentina	Covid-19 Ministerio de Salud	https://play.google.com/store/apps/details?id=ar_gob.coronavirus			
Australia	Coronavirus Australia	https://play.google.com/store/apps/details?id=a u.gov.health.covid19	https://apps.apple.com/au/app/coronavirus -australia/id1503846231		
Austria	STOP Corona	https://play.google.com/store/apps/details?id=at_roteskreuz.stopcorona	https://apps.apple.com/at/app/apple-store/i d1503717224		
Brazil	Coronavírus - SUS	https://play.google.com/store/apps/details?id=b r.gov.datasus.guardioes	https://apps.apple.com/fr/app/coronav%C3 %ADrus-sus/id1408008382		
Catalonia	STOP COVID19 CAT	https://play.google.com/store/apps/details?id=c at.gencat.mobi.StorCovidioCat	https://apps.apple.com/us/app/stop-covid1 9-cat/idt502992288		

² Note: some of these apps are contract tracing and others are symptom-gathering; we haven't yet sorted these into buckets

Colombia	CoronApp - Colombia	https://play.google.com/store/apps/details?id=c o.gov.ins.guardianes	https://apps.apple.com/co/app/coronapp-c olombia/id1502037648		
Espana (Madrid)	CoronaMadrid	https://play.google.com/store/apps/details?id=o rg.madrid.CoronaMadrid	https://apps.apple.com/es/app/coronamadr id/id1502911576		
Euskadi	COVID-19.eus	https://play.google.com/store/apps/details?id=com.erictelm2m.colabora	https://apps.apple.com/es/app/covid-19-eus /idi504249338		
Guatemala	Alerta Guate	https://play.google.com/store/apps/details?id=com.intelligent.alertaguate	https://apps.apple.com/us/app/alerta-guate /id1472419119		
India	Aarogya Setu	https://play.google.com/store/apps/details?id=ni c.goi.aarogyasetu	https://apps.apple.com/in/app/aarogyasetu /id1505825357		
India (Karnataka)		https://kgis.ksrsac.in/kgisdocuments/Apk/corona_vLapk			
India (Kavach)	Corona Kavach, discontinued	old-url: https://play.google.com/store/apps/details?id-e om.cosafe.android			
India (Punjab)	COVA Punjab	https://play.google.com/store/apps/details?id-in-gov.punjab.cova	https://apps.apple.com/fr/app/cova_punjab/id1501977319		
Indonesia	PeduliLindungi	https://play.google.com/store/apps/details?id=c om.telkom.tracencare			
Iran		https://dl.ac19.ir/ac19.apk			
Israel	Hamagen	https://play.google.com/store/apps/details?id=c om.hamagen	https://apps.apple.com/sg/app/%D7%94% D7%0E%D7%02%D7%0F%D7%00%D7% A4%D7%9C%D7%99%D7%A7%D7%A6% D7%90%D7%94-%D7%0C%D7%6F%D7% 9C%D7%97%D7%0E%D7%04-%D7%91%D 7%A7%D7%05%D7%A8%D7%95%D7%A0 %D7%94/id1503224314		https://github.com/Mo hGovIL/hamagen-reac t-native/issues/97
Italy (Lombardia)	allertaLOM	https://play.google.com/store/apps/details?id=it. lispa.sire.app.mobile.allertalom	https://apps.apple.com/it/app/allertalom/id 1455220682		
Mexico	COVID-19MX	https://play.google.com/store/apps/details?id=m x.gobwww	https://apps.apple.com/fr/app/covid-19-jali sco/idt504356187		
Poland	Home Quarantine (Kwarantanna domowa)	https://play.google.com/store/apps/details?id=pl .nask.droid.kwarantannadomowa	https://apps.apple.com/pl/app/kwarantann a-domowa/id1502997499	Advice	
Qatar	COVI	https://play.google.com/store/apps/details?id=com.droobihealth.corona	https://apps.apple.com/us/app/droobi/id125 8209665		
Singapore	TraceTogether	https://play.google.com/store/apps/details?id=sg .govtech.bluetrace&hl=en_GB	https://apps.apple.com/sg/app/tracetogethe r/idt498276074	Contact Tracing (BLE)	
South Korea	자가격리자 안전보호	https://play.google.com/store/apps/details?id=k r.go.safekorea.sqsm	https://apps.apple.com/gb/app/%EC%oE% 90%EA%B0%80%EA%B2%A9%EB%A6% AC%EC%oE%g0-%EC%95%88%EC%A0% 84%EB%B3%B4%ED%98%B8/idi5023725 32		
Switzerland	Alertswiss	https://play.google.com/store/apps/details?id=c h.admin.babs.alertswiss	https://apps.apple.com/ch/app/alertswiss/idos7330177		
Turkey	Korona Önlem	https://play.google.com/store/apps/details?id=tr_gov.saglik.koronaonlem	https://apps.apple.com/tr/app/korona-%C3 %B6nlem/id1503515316		
U.K	COVID Symptom Tracker	https://play.google.com/store/apps/details?id=c om.joinzoe.covid_zoe	https://apps.apple.com/gb/app/covid-symp tom-tracker/id1503529611	Symptom Reporting	

Uruguay	Coronavirus UY	https://play.google.com/store/apps/details?id=u y.gub.salud.plancovid19uy	https://apps.apple.com/us/app/coronavirus -uy/id1503026854	
Vietnam	COVID-19	https://play.google.com/store/apps/details?id=c om.Eha.covid_19	https://apps.apple.com/us/app/covid-19/id1 501810040?ls=1	

Independent (Non-State/Government Sanctioned)

- MIT Media Lab: MIT SafePaths
- Stanford + Waterloo : COVID Watch
- CoronaTrace on GitHub (not sure who is behind it)
- <u>BanDemic</u> German effort BLE / Bluetooth, not open source
- InfectionChain QR code based
- NextTrace -from Trevor Bedford (Fred Hutchinson Cancer Research Centre) app not yet available
- WeTrace
- OpenDemic (app/GPS)
- <u>HowWeFeel</u> (App/GPS)
- Sensyne?

Dashboards³

- MS <u>Bing COVID-19 Tracker</u>
- Public Health England COVID-19 Tracker
- https://coronavirus.jhu.edu/map.html

Quarantine Tracking/Enforcement

• <u>Covid-FLutter</u> - Active quarantine app for registering those in quarantine and for actively reporting people's locations, independent developer in India

Crowdsourcing Policies

- Blavatnik Oxford COVID-19 Government Response Tracker
- Stanford Social Distancing rollout across US counties <u>https://socialdistancing.stanford.edu/</u>

Health Guidance

- WHO App App for disseminating official health guidance to the world in many languages
- Coronabot Chatbot disseminating WHO and JHU advice

³ There are so many of these! Not sure we want to capture them all

Not apps: Whitepapers, Analyses, Requirements, and Protocols

Epidemiological perspectives

- Science Quantifying SARS-CoV-2 transmission suggests epidemic control with digital contact tracing Oxford BDI / Wellcome Trust
- Policy forum COVID-19 containment by herd protection Oxford BDI
- Harvard: <u>Outpacing the Virus</u>: <u>Digital Response to Containing the Spread of COVID-19</u> <u>while Mitigating Privacy Risks</u>

Privacy aspects and requirements

Privacy Analyses of COVID apps and systems

- Imperial Computational Privacy Group: <u>Evaluating COVID-19 contact tracing apps? Here are 8 privacy questions we think you should ask.</u>
- Privacy International: Tracking the Global Response to COVID-19
- Forensic Defensive Lab Agency COVID-19

Privacy-Preserving Protocols

- <u>PEPP-PT</u> + <u>DP-3T</u> : Consortium of people (government, EU initiatives)
 - o subset of group prefer a decentralised solution to a centralised one
 - cryptographers and privacy advocates favour a decentralisd one; those who are making the decision are in favour of a centralised implementation for ease of data use and implementation
- PPDT Privacy Preserving Disease Tracking
- Jaap-Henk Hoepman: Hansel and Gretel and the Virus: Privacy Conscious Contact Tracing

Privacy Requirements for Contract Tracing Apps

• CCC "10 Requirements of Contact Tracing apps"

Further ethical and responsibility issues:

- Consent to participate: are the terms and conditions presented in a way that can be easily understood?
- Protection of children and vulnerable citizens: are there mechanisms to stop them signing up and using the app/site if they are unable to fully understand what is involved and its potential consequences?

- Are users of the app/site providing information only about themselves or also about others who may not wish to be involved and may not know that information about them is being given?
- What other personal/private information (beyond symptoms etc.) is being collected even if unintentionally?
- Disadvantages for those who are less technically literate. For instance, if they do not know how to set privacy features on their devices, they may be at a greater risk of invasion of privacy when using the tool
- Access to smartphones and online connection is not universal. Will those who are unable
 to afford them or live in remote areas with poor Internet connections be disadvantaged if
 they are not able to use an app for instance one that provides accelerated/more
 streamlined care?
- Health and illness are deeply bound up with normative issues across societies. There are stigmas associated with certain health conditions and health behaviours. There is a risk that tracking/monitoring tools can contribute to these stigmas unintentionally – e.g. labelling people who are not performing 'well enough' at social distancing or who have passed on infections.
- All tools need to be assessed within the context of their use. Different countries and social groups often have different social practices and norms as well as laws that will shape how the tools are used and the impacts that they have.

Links to other resource aggregations

- <u>fsoci3iy.com COVID-19 Apps</u>
- Alan Turing Institute's COVID-19 Pandemic Symptom Trackers and Calendars
- Coronavirus Tech Handbook relevant sections:
 - o Self-reporting and Tracing Tools
 - <u>Technologist Collectives</u>
 - o Tools for Volunteering and Organising
- <u>CodevVsCOVID-19</u>
- CovTech.Ventures
- SOLID project <u>Let's do our bit to tackle covid-19 together</u>
- SOLID project Apps and Hackathons
- Github COVID-19 Tracing Projects
- <u>Unified research on privacy-preserving contact tracing and exposure notification for COVID-19</u>

TODO - Help - Please help merge in the brilliant work from the Defensive Lab Agency's COVID-19 Apps List

name	appid	trackers	detections
		I	
Coronavírus SUS	br.gov.datasus.guardioes	tracker(s)	8 detection(s)
COVIDAGCAT	cat.gencat.mobi.StopCovid19 Cat	z t ala(a)	0.4-11(-)
COVID19 CAT		I tracker(s)	9 detection(s)
Alertswiss	ch.admin.babs.alertswiss	3 tracker(s)	
CoronApp	co.gov.ins.guardianes	7 tracker(s)	17 detection(s)
AC19	co.health.covid	I tracker(s)	13 detection(s)
COVID-19	com.Eha.covid_19	5 tracker(s)	28 detection(s)
Ada	com.ada.app	4 tracker(s)	17 detection(s)
СоцМониторинг	com.askgps.personaltrackerr ound	tracker(s) 19 detection(s)	
Quarantine Watch	com.bmc.qrtnwatch	o tracker(s)	9 detection(s)
Corona Kavach	com.cosafe.android	o tracker(s)	12 detection(s)
COVI	com.droobihealth.corona	2 tracker(s)	16 detection(s)
COVID-19.eus	com.erictelm2m.colabora	2 tracker(s)	9 detection(s)
המגן	com.hamagen	ı tracker(s)	20 detection(s)
COVID-19Tracker	com.healthlynked.hlvt	2 tracker(s)	16 detection(s)
Alerta Guate	com.intelligent.alertaguate	4 tracker(s)	15 detection(s)
COVID Symptom Tracker	com.joinzoe.covid_zoe	10 tracker(s)	24 detection(s)
Corona Watch	com.ksrsac.drawshapefile	o tracker(s)	10 detection(s)
DeltaEarth	-	4 tracker(s)	15 detection(s)
Coronavirus Tracker	com.outsystemscloud.miguel antunes.Coronavirus	ı tracker(s)	9 detection(s)
COVID-19	com.pixxonai.covid19	o tracker(s)	7 detection(s)
PeduliLindungi	com.telkom.tracencare	o tracker(s)	13 detection(s)
NCOVI	com.vnptit.innovation.ncovi	I tracker(s)	9 detection(s)
CoronaNow	coronanow.kr	3	13 detection(s)

		tracker(s)	
Coronavirus (COVID-19) Tracking - Online Map - News	covid19.page	3 tracker(s)	13 detection(s)
PrivateKit	edu.mit.privatekit	o tracker(s)	14 detection(s)
Covidom	fr.aphp.covidom	ı tracker(s)	10 detection(s)
CDC	gov.cdc.general	3 tracker(s)	15 detection(s)
LIVI	health.livi.android	7 tracker(s)	31 detection(s)
COVID19	id.rizmaulana.covid19	ı tracker(s)	9 detection(s)
COVA	in.gov.punjab.cova	ı tracker(s)	9 detection(s)
ADiLife C-19	it.adilife.covid19.app	o tracker(s)	8 detection(s)
CoronaMadrid	org.madrid.CoronaMadrid	2 tracker(s)	19 detection(s)
Kwarantanna Domowa	pl.nask.droid.kwarantannado mowa	7 tracker(s)	16 detection(s)
Corona Virus Tracker	studio.coronavirus.covid19	ı tracker(s)	9 detection(s)
Coronavirus UY	uy.gub.salud.plancovid19uy	2 tracker(s)	18 detection(s)